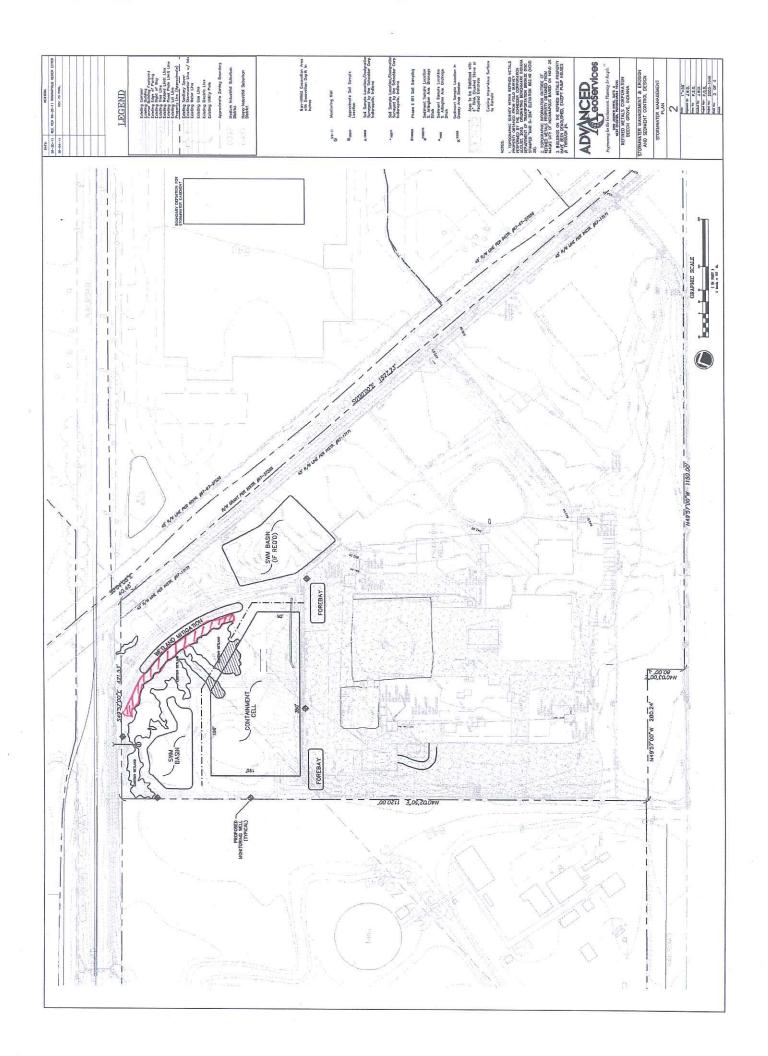
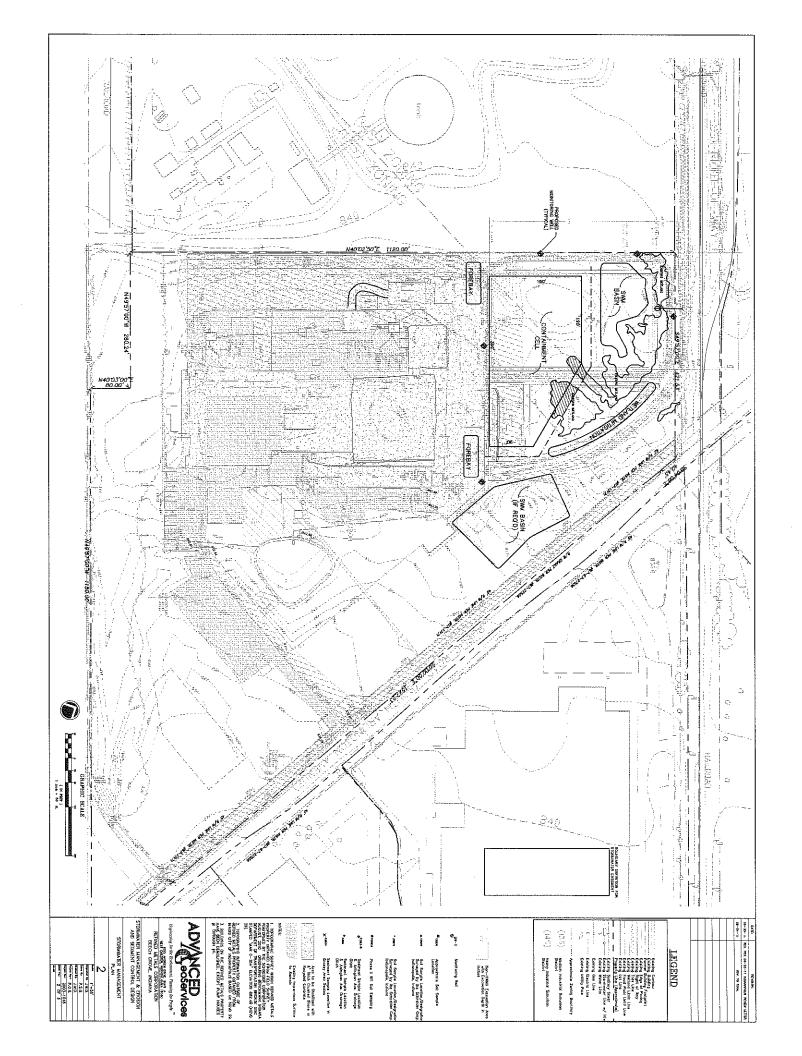


· ·				
		•		
	·			
		·		
				e e
			·	
			·	
				·
· ·				
		÷		
			•	
			•	
				•
	•			



	•				
			·		
					•
•					
				·	
					,
					,
٠.					



	·	•			
				T.	
•					
				•	
•					
			•		
				*	
•					
	•				
			•		



RE: Refined Metals Beech grove (UNCLASSIFIED)

Lindley, Laban C LRL to: Paul Stratman, Jonathan Adenuga "JEAN, RUTH (RJEAN@idem.IN.gov)", "matt.love@exide.com", Cc: "SGroce@idem.IN.gov"

08/30/2012 11:53 AM

History:

This message has been forwarded.

1 attachment



document2012-08-30-070117.pdf

Classification: UNCLASSIFIED

Caveats: NONE

Paul -

Thank you for the information. It looks like you all are striving hard to avoid and minimize impacts to the wetlands on-site.

I just have one comment about the proposed mitigation. The drawing you attached shows doing wetland mitigation in the same area of the existing wetland ditch along the rail spur. Since this is already considered a jurisdictional wetland area, you cannot do mitigation there. I was thinking we discussed trying to design the mitigation between the ditch wetland and the other existing wetlands on-site, where it is currently upland. This would essentially make the large wetland system on-site contiguous with the wetland ditch. I hand sketched what I'm talking about on your drawing in red, and attached. Depending on how much mitigation is needed, hopefully there is plenty of room in that area. Let me know if you have any questions.

Thanks,

Laban C. Lindley Team Leader U.S. Army Corps of Engineers Louisville District Indianapolis Regulatory Office 8902 Otis Avenue, Suite S106B Indianapolis, IN 46216 Phone: 317-691-2666

----Original Message----

From: Paul Stratman [mailto:pstratman@advancedgeoservices.com]

Sent: Monday, August 27, 2012 2:13 PM To: Adenuga. Jonathan@epamail.epa.gov

Cc: JEAN, RUTH (RJEAN@idem.IN.gov); matt.love@exide.com; Lindley, Laban C LRL;

SGroce@idem.IN.gov

Subject: Refined Metals Beech grove

Jonathan,

Pursuant to the discussions between you, Matt Love and I, attached please find

a drawing showing the conceptual changes for the Refined Metals Site in Beech Grove, Indiana. As you are aware, the changes are necessary to satisfy the Army Corps of Engineers (ACOE) requirement that we minimize disturbance of existing wetlands as a condition of necessary Section 404 Permits. We believe that the conceptual changes as presented on the attached drawing successfully address the ACOE requirements to minimize disturbance while minimizing changes to the primary components of the approved Corrective Measures Design. A description of the anticipated changes is provided below:

- 1. The original Containment Cell had a rectangular shape and an area of $62,700 \text{ sf } (330 \text{ ft.} \times 190 \text{ ft.})$ as measured at the centerline of the proposed berm. The modified Design shows the cell rotated 90 degrees from the approved design with the northeast corner truncated and an approximate area of 58,500 sf. (a reduction of approximately 6-7%). The proposed bottom elevation and maximum grading elevations will remain at 841.5 and 860.5 respectively, with maximum 3:1 side slopes. The containment cell capacity is expected to be reduced from the current 25,600 +/- cy to approximately 22,500 +/- cy.
- 2. The storm water management (SWM) basin was originally proposed to be immediately east of the containment cell. The revised location will be north of the proposed containment cell. The precise configuration will not be defined until we perform storm water management calculations, but the general concept is that the SWM basin will receive runoff from the west half of the site and discharge to the drainage ditch located along the south side of the CSX tracks. Runoff from the remainder of the site is expected to flow around the east side of the cell to the existing and mitigated wetland areas. Small runoff events will sustain the existing and proposed wetlands. Larger runoff events will inundate the wetlands and discharge through the SWM basin outlet structure. If storm water calculations require additional capacity, a second SWM basin may be constructed immediately east of the rail spur.
- 3. Forebays will be established upslope from the proposed SWM basins to capture sediment.
- 4. Maximum water surface elevations for the 10 year design storm event in the SWM basin(s) will be designed to be less than elevation 841.5. Grading adjacent to the existing and mitigated wetland areas will be set to prevent detention of water higher than elevation 841.
- 5. Restoration grading as proposed in the approved design in areas south of the containment cell may be revised to enhance surface water runoff conditions to match the new SWM basin location(s).
- 6. Also at the request of the Army Corps and IDEM, swales proposed for sediment remediation along the railroad spur will be restored utilizing "soft" materials (soil and vegetation) instead of the geotextile and rip-rap proposed in the current design. Remediated portions of the swale along the CSX line will be restored using soil and periodic stone check dams.

Matt Love and I would like to meet with you and your contractor in Chicago to review the proposed changes and discuss consistency with the previously approved Corrective Measures Plan and the best path forward. Please let Matt and I know your schedule over the next few weeks.

Thank you.

Paul

Sampling Point:

WD-8

Depth	<u>Matrix</u>	1	<u>Re</u>	dox Feat	tures			J	
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Э	Remarks
0-18	10 YR 3/2	100					SCL		
					1				3
				-			and the second		
								20	
					_				
				-	-				
									×
									18
pe: C = C	Concentration, D	= Depleti	on BM = Beduc	ed Matri	x. MS = M	lasked S	and Grains.	**Location	: PL = Pore Lining, M = Matr
	il Indicators:	Dopioti	011, 1111 - 110000	ou main	λ, πο - π	idonod o			matic Hydric Soils:
F-12	isol (A1)		Sa	ndy Glev	ed Matrix	(94)			ox (A16) (LRR K, L, R)
	ic Epipedon (A2)			ndy Red		(04)			(LRR K, L)
			The second secon	2	330 000				
	ck Histic (A3)	41		5325	atrix (S6)	ST 71543			or Peat (S3) (LRR K, L, R)
	rogen Sulfide (A				ky Minera				Masses (F12) (LRR K, L, R)
	tified Layers (A5)			yed Matrix				Surface (TF12)
	n Muck (A10)				latrix (F3)		Other (explain in r	emarks)
	leted Below Darl				s Surface				
	k Dark Surface (ark Surfa		*Indicate	ors of hydro	phytic vegetation and weltar
San	dy Mucky Minera	al (S1)	Re	dox Dep	ressions	(F8)	hydrolo	gy must be	present, unless disturbed o
5 cn	n Mucky Peat or	Peat (S3)					p	problematic
etrictive l	Layer (if observ	eq).				1			
oe:	Layer (II observ	eu).					Hydria c	oil present	? Y
	oe):				_		riyario 3	on present	· .
pth (inche	es):	220	- E	1	_	2	Tryullo 3	on present	
pth (inche	DGY	353		E .	_	*	Tryullo 3		
pth (inche marks:		ors:	5	1	_	2	Tryullo 3		
pth (inche marks: 'DROLC etland Hy	DGY		required; check	all that a	apply)		a	*	cators (minimum of two requ
pth (inche marks: /DROLC etland Hy mary India	OGY drology Indicato cators (minimum		required; check		apply)	313)	a	ondary Indic	cators (minimum of two requ
pth (inche marks: /DROLC etland Hy- mary India Surface	OGY drology Indicate cators (minimum Water (A1)		required; check	Aquatio	Fauna (E		a	ondary Indic Surface S	cators (minimum of two requoil Cracks (B6)
DROLC tland Hy mary India Surface Tight Wa	OGY drology Indicate cators (minimum Water (A1) tter Table (A2)		required; check	Aquatio True Ad	: Fauna (B quatic Plai	nts (B14)	Seco	ondary Indic Surface S Drainage	cators (minimum of two requoil Cracks (B6) Patterns (B10)
DROLO TOROLO TOR	OGY drology Indicate cators (minimum Water (A1) tter Table (A2)		required; check	Aquation True Action Hydrog	: Fauna (E quatic Plai en Sulfide	nts (B14) Odor (C	<u>Sec</u>	ondary India Surface S Drainage Dry-Seaso	cators (minimum of two requoil Cracks (B6)
Pth (incher marks: /DROLC etland Hymary India Surface India High Wa Saturatio Water M	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1)		required; check	Aquation True Act Hydrog Oxidize	: Fauna (E quatic Plai en Sulfide	nts (B14) Odor (C	Seco	ondary Indio Surface S Drainage Dry-Seaso Crayfish E	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8)
DROLO etland Hy mary India Surface High Wa Saturatio Water M Sedimer	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2)		required; check	Aquation True Act Hydrog Oxidize (C3)	: Fauna (E quatic Plai en Sulfide	nts (B14) Odor (Coheres on	Secu 	ondary India Surface S Drainage Dry-Seaso Crayfish E Saturation	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2)
Pth (incher marks: PROLCE Tand Hymary India Surface Mary India Surface Mary India Surface Mary India Water Mary India Water Mary India Water Mary India	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2)		required; check	Aquation True Act Hydrog Oxidize (C3) Presen	e Fauna (B quatic Plai en Sulfide ed Rhizosp ce of Red	nts (B14) Odor (Control of the control of the contr	Secu 	ondary India Surface S Drainage Dry-Sease Crayfish E Saturation	cators (minimum of two requoli Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) I Visible on Aerial Imagery (C5)
DROLC Partiand Hy Mary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	DGY drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3)		required; check	Aquation True Act Hydrog Oxidize (C3) Presen	e Fauna (B quatic Plai en Sulfide ed Rhizosp ce of Red	nts (B14) Odor (Control of the control of the contr	Seculo Se	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturation Stunted of Geomorpl	cators (minimum of two requioil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (Cs
YDROLC etland Hydimary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) nt Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5)	of one is		Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6)	E Fauna (B quatic Plan en Sulfide ed Rhizosp ce of Red Iron Redu	nts (B14) Odor (Control otheres on otheres on ouced Iron ouction in T	Seculo Se	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturation Stunted of Geomorpl	cators (minimum of two requioil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (Cs) of Stressed Plants (D1) onic Position (D2)
YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio	drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri	of one is	y (B7)	Aquation True Ao Hydrog Oxidize (C3) Presen Recent (C6) Thin Mo	e Fauna (B quatic Plai en Sulfide ed Rhizosp ce of Red	nts (B14) Odor (Coheres on uced Iron uction in Toce (C7)	Seculo Se	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturation Stunted of Geomorpl	cators (minimum of two requioil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (Cs) of Stressed Plants (D1) onic Position (D2)
YDROLC etland Hydimary India Surface High Was Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundation Sparsely	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) nt Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5)	of one is al Imager ave Surfa	y (B7)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	E Fauna (Bequatic Planen Sulfide ed Rhizospoce of Reduck Surface	onts (B14) Odor (Control of the control of the cont	Section Sectio	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturation Stunted of Geomorpl	cators (minimum of two requioil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (Cs) of Stressed Plants (D1) onic Position (D2)
YDROLC etland Hydimary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-S	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) to Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (B5)	of one is al Imager ave Surfa	y (B7)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	Fauna (B quatic Plai en Sulfide ed Rhizosp ce of Red Iron Redu uck Surfac or Well D	onts (B14) Odor (Control of the control of the cont	Section Sectio	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturation Stunted of Geomorpl	cators (minimum of two requioil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (Cs) of Stressed Plants (D1) onic Position (D2)
YDROLO etland Hydracy India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S eld Obser	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (B5) creations:	of one is al Imager ave Surfa 9)	y (B7) ce (B8)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	E Fauna (B quatic Plan en Sulfide ed Rhizosp ce of Red Iron Redu uck Surfac or Well D Explain in	nts (B14) Odor (C' oheres on uced Iron uction in T ce (C7) ata (D9) Remarks	Section Sectio	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted o Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) onic Position (D2) oral Test (D5)
Pth (inches marks: PROLCE TIAND Hymary India Surface Mater Sparsely Water-Seld Obser rface water	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) tarks (B1) to Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (B5) crystions:	al Imager ave Surfa 9)	y (B7) ce (B8)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	E Fauna (B quatic Plan en Sulfide ed Rhizosp ce of Red Iron Redu uck Surfac or Well D Explain in	nts (B14) Odor (C' oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches):	Section Sectio	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted o Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) onic Position (D2) oral Test (D5)
Pth (inche marks: PROLC etland Hymary India Surface Mater M Sedimer Drift Dep Inundatic Sparsely Water-Seld Obser rface water table	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) farks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (Bs vations: er present?	al Imager ave Surfa 9) Yes Yes	y (B7) ce (B8)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	c Fauna (B quatic Plan en Sulfide ed Rhizosp ce of Red Iron Redu uck Surfac or Well D Explain in	nts (B14) Odor (C' oheres on uced Iron uction in 7 ce (C7) ata (D9) Remarks inches): inches):	Section Sectio	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted o Geomorph FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
Pth (inche marks: PROLO Ptland Hy mary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatia Sparsely Water-S Ptland Obser Irface water table Ituration p	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) tarks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (B5) cators: er present? present?	al Imager ave Surfa 9)	y (B7) ce (B8)	Aquation True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge	c Fauna (B quatic Plan en Sulfide ed Rhizosp ce of Red Iron Redu uck Surfac or Well D Explain in	nts (B14) Odor (C' oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches):	Section Sectio	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted o Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
YDROLC etland Hy imary India Surface High Wa Saturatio Water M Sedimer Drift Dep Inundatio Sparsely Water-S eld Obser urface water atter table atturation p	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
YDROLC etland Hy imary India Surface High Wa Saturatio Water M Sedimer Drift Dep Inundatia Sparsely Water-S eld Obser urface water ater table aturation p	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) tarks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeri v Vegetated Conctained Leaves (B5) cators: er present? present?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
YDROLC etland Hy imary India Surface High Wa Saturatio Water M Sedimer Drift Dep Inundatia Sparsely Water-S eld Obser urface water ater table aturation p	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
YDROLC etland Hy imary India Surface High Wa Saturatio Water M Sedimer Drift Dep Inundatio Sparsely Water-S eld Obser urface water atter table atturation p icludes ca	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
pth (inche marks: 'DROLC etland Hy mary India Surface' High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatia Sparsely Water-S eld Obser inface water atter table atturation p cludes ca	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
Port (inches marks: Port of the following properties of t	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)
YDROLC etland Hy imary India Surface High Wa Saturatio Water M Sedimer Drift Dep Inundatia Sparsely Water-S eld Obser urface water ater table aturation p	drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) larks (B1) at or Crust (B4) cosits (B5) on Visible on Aeri Vegetated Conctained Leaves (Bs) vations: er present? present? resent?	al Imager ave Surfa 9) Yes Yes Yes	y (B7) ce (B8) No No	Aquatic True Ad Hydrog Oxidize (C3) Presen Recent (C6) Thin M Gauge Other (E Fauna (Bequatic Planen Sulfide ed Rhizospece of Reduck Surfactor Well Dexplain in Depth (Depth (De	nts (B14) o Odor (Control of the control of the con	Second Se	ondary Indic Surface S Drainage Dry-Seaso Crayfish E Saturation Stunted or Geomorpl FAC-Neut	cators (minimum of two requoil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) of Visible on Aerial Imagery (C9) of Stressed Plants (D1) of Position (D2) tral Test (D5)

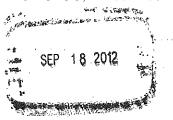


epth M ches) Color (mo	<u>atrix</u> ist) %	Color (mo	Redox Feat ist) %	Type*	Loc**	Texture		Rema	ırks
-18 10 YR 3						SCL			
								245 l	wo
			_				0	Luth	- 71
		-				7	10	77 L @	2.5
				\vdash	(-	77		126	2,7
		-				Pi		4	(0)
e: C = Concentratio	n. D = Deple	tion, RM = Re	educed Matri	x, MS = N	lasked S			L = Pore Linin	
dric Soil Indicator						Indicators for			
Histisol (A1)			Sandy Gley		(\$4)			(A16) (LRR K	, L, R)
Histic Epipedor	(A2)		Sandy Red	ox (S5)	5	Dark Surfa	ce (S7) (L	RRK, L)	D K I D)
Black Histic (A		-	Stripped Ma	atrix (S6)		5 cm Muck	y Peat or	Peat (S3) (LR	m K, L, n)
Hydrogen Sulfin		***************************************	Loamy Muc	cky Minera	al (F1)			sses (F12) (LF	
Stratified Layer		-	Loamy Gle			Very Shall	ow Dark S	Surface (TF12)	
2 cm Muck (A1			Depleted N	latrix (F3)		Other (exp	lain in ren	narks)	
X Depleted Below	u) i Dark Surfai	ce (A11)	Redox Dar	k Surface	(F6)	3	860 10		
Thick Dark Sur	Food (A12)		Depleted D	ark Surfa	ce (F7)	*Indicators	of hydroph	ytic vegetation	n and weltand
Sandy Mucky	linoral (S1)	7	Redox Dep	oressions	(F8)	hydrology	must be p	resent, unless	alsturbed or
5 cm Mucky P	ot or Peat (33)	7			5 W. G. Charles	pro	Diemanc	
								00 28	
strictive Layer (if o	oserved):					Hydric soil	present?	<u> </u>	
Je									11
pet (inches):									
pth (inches):									
pth (inches):									Leve require
pth (inches):	ndicators:					Secor	ndary Indic	ators (minimu	m of two require
pth (inches):	ndicators:	ne is required.	check all tha	at apply)	(240)	Secon	Surface S	oil Cracks (DO)	m of two require
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m	inimum of or	ne is required	; check all tha Aqua	at apply) atic Fauna	(B13)		Surface S	oil Cracks (DO) Patterns (B10)	
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m	inimum ot or)	ne is required	True	Aquanci	Plants (B)	4) (C1)	Surface S Drainage Dry-Seas	oil Cracks (B6) Patterns (B10) on Water Table	e (C2)
yDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table	inimum ot or)	ne is required	True	Aquanci	Plants (B)	4) (C1)	Surface S Drainage Dry-Seas	oil Cracks (B6) Patterns (B10) on Water Table	e (C2)
pth (inches): PMOLOGY Vetland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3)	i <u>nimum ot or</u>) (A2)	ne is required	Hyd Oxio	rogen Sulf dized Rhiz	Plants (B) ide Odor ospheres	4) (C1) on Living Roots	Surface S Drainage Dry-Seas Crayfish	oil Cracks (50) Patterns (B10) on Water Table Burrows (C8)	e (C2) vrial Imagery (C9)
yDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) water Marks (B1)	i <u>nimum of or</u>) (A2)	ne is required	Hydr Oxio (C3	rogen Sulf dized Rhize	Plants (B) ide Odor ospheres	4) (C1) on Living Roots	Surface S Drainage Dry-Seas Crayfish I Saturatio	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla	e (C2) erial Imagery (C9) ents (D1)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos	inimum of or) (A2) Is (B2)	ne is required	Hydr Oxio (C3	rogen Sulf dized Rhize	Plants (B) ide Odor ospheres	4) (C1) on Living Roots	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted Geomore	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (E	e (C2) erial Imagery (C9) ents (D1)
pth (inches): PTROLOGY Vetland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B	inimum ot or) (A2) ds (B2)	ne is required	— True — Hydi — Oxio (C3 — Pre — Rec	rogen Sulf dized Rhize) sence of F cent Iron F	Plants (B) ide Odor ospheres Reduced Reduction	4) (C1) on Living Roots ron (C4) in Tilled Soils	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted Geomore	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla	e (C2) erial Imagery (C9) ents (D1)
yDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru	inimum of or (A2) its (B2) st (B4)		Hyd Oxio (C3 Pre Rec (C6	rogen Sulf dized Rhize) sence of F cent Iron F S)	Plants (B) ide Odor ospheres Reduced Reduction ourface (C)	4) (C1) on Living Roots ron (C4) in Tilled Soils	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted Geomore	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (E	e (C2) erial Imagery (C9) ents (D1)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B	(A2) (ss (B2) (st (B4) (b) (c) (c) (c) (c) (c) (d) (d)	nanery (B7)	True Hyd Oxio (C3 Pre Rec (C6	rogen Sulf dized Rhize) sence of F cent Iron F 6) in Muck Si	Plants (B) ide Odor ospheres Reduced Reduction urface (C)	4) (C1) on Living Roots iron (C4) in Tilled Soils 7)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted Geomore	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (E	e (C2) erial Imagery (C9) ents (D1)
pth (inches): pmarks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib	inimum of or (A2) Its (B2) Its (B4) Its (B4) Its on Aerial Interded Concave	nanery (B7)	True Hyd Oxio (C3 Pre Rec (C6	rogen Sulf dized Rhize) sence of F cent Iron F 6) in Muck Si	Plants (B) ide Odor ospheres Reduced Reduction urface (C)	4) (C1) on Living Roots iron (C4) in Tilled Soils 7)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted Geomore	oil Cracks (Bo) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (E	e (C2) erial Imagery (C9) ents (D1)
pth (inches): pmarks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib	inimum of or (A2) Its (B2) Its (B4) Its (B4) Its on Aerial Interded Concave	nanery (B7)	True Hyd Oxio (C3 Pre Rec (C6	rogen Sulf dized Rhize) sence of F cent Iron F s) in Muck St auge or We ther (Expla	Plants (BT) ide Odor ospheres Reduced Reduction urface (C ell Data (I lin in Ren	4) (C1) on Living Roots fron (C4) in Tilled Soils (7) (7) (7) (7) (7) (7) (7) (7) (7) (7)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (D utral Test (D5)	e (C2) erial Imagery (C9) ents (D1)
pth (inches): pmarks: PDROLOGY Vetland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained	inimum of or (A2) its (B2) it (B4) it) e on Aerial Intel Concave Leaves (B9)	nanery (B7)	True Hyd Oxic (C3 Pre Rec (C6 Thi	rogen Sulf dized Rhize) sence of F cent Iron F s) in Muck St auge or We her (Expla	Plants (B1) ide Odor ospheres Reduced Reduction urface (Cell Data (I) Data	4) (C1) on Living Roots fron (C4) in Tilled Soils (7) (29) harks)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Net	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) In Visible on Ae or Stressed Pla ohic Position (D outral Test (D5)	e (C2) brial Imagery (C9) unts (D1) D2)
yDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained	inimum of or (A2) its (B2) its (B4) its (B4) its on Aerial Intel Concave Leaves (B9)	nanery (B7)	True Hyd Oxic (C3 Pre Rec (C6 Th)	rogen Sulf dized Rhiz:) sence of F cent Iron F 6) in Muck Si auge or Wo her (Expla	Plants (B1) ide Odor ospheres Reduced Reduction urface (C lell Data (lin in Renepth (inchenth (inchenth) (inchenth (inchenth) (inchent	4) (C1) on Living Roots fron (C4) in Tilled Soils 7) D9) narks)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Net	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (D outral Test (D5)	e (C2) erial Imagery (C9) ents (D1)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegete Water-Stained Field Observation	inimum of or	nagery (B7) Surface (B8)	True Hydr Oxic (C3 Pre Rec (C6 Thr Gas Ot	rogen Sulf dized Rhiz:) sence of F cent Iron F 6) in Muck Si auge or Wo her (Expla	Plants (B1) ide Odor ospheres Reduced Reduction urface (C lell Data (lin in Renepth (inchenth (inchenth) (inchenth (inchenth) (inchent	4) (C1) on Living Roots fron (C4) in Tilled Soils 7) D9) narks)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Net	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) In Visible on Ae or Stressed Pla ohic Position (D outral Test (D5)	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots ron (C4) in Tilled Soils 7) D9) narks) es):	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots ron (C4) in Tilled Soils 7) D9) narks) es):	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots ron (C4) in Tilled Soils 7) D9) narks) es):	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) n Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots ron (C4) in Tilled Soils 7) D9) narks) es):	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) In Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots fron (C4) in Tilled Soils 7) D9) narks)	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) In Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)
pth (inches): marks: YDROLOGY /etland Hydrology rimary Indicators (m Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visib Sparsely Vegeta Water-Stained (I) Field Observation Surface water presentable prase	inimum of or	nagery (B7) Surface (B8) Yes Yes	True Hydi Oxic (C3 Pre Rec (C6 Thi Ga Ot	rogen Sulf dized Rhize) sence of F cent Iron F in Muck Si auge or We her (Expla	Plants (B ¹) ide Odor ospheres Reduced Reduction urface (Cell Data (lin in Ren epth (inchepth (4) (C1) on Living Roots ron (C4) in Tilled Soils 7) D9) narks) es):	Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted G Geomory FAC-Nei	oil Cracks (DO) Patterns (B10) on Water Table Burrows (C8) In Visible on Ae or Stressed Pla ohic Position (D outral Test (D5) etland drology esent?	e (C2) brial Imagery (C9) unts (D1) D2)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 77 WEST JACKSON BOULEVARD CHICAGO, IL 60604-3590



BEPLY TO THE ATTENTION OF

LU-9J

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Matthew A. Love Manager-Regulatory Affairs Exide Corporation 3000 Montrose Avenue Reading, PA 19605

> Conceptual Containment Design changes Refined Metals Corporation IND 000 718 130

Dear Mr. Love:

Thanks for your August 27, 2012, email with attachment showing conceptual changes to the United States Environmental Protection Agency (EPA) approved Containment Cell design for the Refined Metals Corporation. The containment Cell is referenced in the EPA approved final Corrective Measures Design (CMD). EPA is are aware that the proposed changes to the Containment design are necessary to satisfy the Army Corps of Engineers (ACOE) requirement that Refined Metals Corporation minimize disturbance of existing wetlands as a condition necessary for securing Section 404 Permits.

Based on our review at this time, no major issues were noted on the conceptual changes to the containment cell, storm water management (SWM) basin and Forebay configuration, pending final detail changes to the conceptual design. However, the following items were noted in the conceptual design:

- 1. Although the size of the proposed containment cell is slightly smaller than the original CMD as long as the contingency remains that any excess material will be disposed of off-site, this does not appear to be an issue.
- 2. It is noted that only (5) monitoring wells are shown on the conceptual drawing. The original CMD proposed (6) monitoring wells. In addition, one of the new proposed locations appears to be very close to the location of the existing monitoring well MW-8. MW-8 was proposed to be part of

the Monitored Natural Attenuation (MNA) monitoring well network in the original CMD. It appears that additional wells east and southeast of the proposed containment cell may be necessary.

- 3. The proposed western-most Forebay appears to be in close vicinity to the existing monitoring well MW-2, which was also proposed in the original CMD to be part of the MNA monitoring wells network. It is not clear if construction of this Forebay would entail replacement of monitoring well MW-2.
- 4. It appears also that the ACOE has made some changes to the conceptual design. The ACOE changes should also be addressed.

Finally, EPA is aware that the conceptual design changes were submitted for discussion purpose; however, EPA will not approve this submittal in its current state. We suggest that you address EPA's comments and continue to work with ACOE and Indiana Department of Environmental Management for proper revision(s) of the Containment Cell design as it affects wetland issues.

If you have any questions, I can be reached at (312) 886-7954.

Sincerely

Jonathan Adenuga

Corrective Action Section 2 Land and Chemicals Division

cc: Ruth Jean, IDEM

.	·	•	
	•		
		·	
			, .
•			
		· ·	
•			
,			
	•		

CORRECTIVE MEASURES IMPLEMENTATION REFINED METALS CORPORATION

Meeting Minutes

July 26, 2012 1:15 -2:45

Purpose: Review and discuss water quality certification (Section 401) and wetlands disturbance/filling (Section 404) permitting requirements and timeframes associated with proposed Site remediation.

Participants: Matthew Love (Exide/RMC), Laban Lindley (ACOE), Jonathan Adenuga (USEPA (via telephone)), Samantha Groce (IDEM), Paul Stratman (AGC)

The following summarizes discussions from the meeting:

- L. Lindley stated that the Jurisdictional Determination (JD) has been approved by Louisville
 and that it is being reviewed by IDEM. He expects that the completed JD will be finalized in
 the next 2 weeks.
- P. Stratman provided a very brief review of project background for the benefit of S Groce and L. Lindley.
- Based on the final revised wetlands mapping completed by Keramida in May 2012 and included in the JD, the wetlands situated in the portion of the RMC Beech Grove Site west of the railroad spur and north of the former manufacturing areas of the site are 0.49 acres (see attached figure). The wetlands are hydraulically connected to the drainage ditch along the railroad spur. The drainage ditch is connected to the non-navigable Water of the U.S. Beech Creek, which is a tributary to Lick Creek. Therefore, the wetlands and the ditches are U.S. Waters regulated by the Army Corps of Engineers (ACOE) under the Clean Water Act.
- Keramida has identified 0.2 acres of State Isolated wetlands regulated by IDEM immediately south east of the railroad spur and 0.01 acres of federally regulated wetlands northeast of the railroad spur.
- The current Corrective Measures Design (CMD) includes the filling/disturbance of all of the 0.49 acres of federally regulated wetlands west of the railroad spur and remediation of approximately 1,500 lineal feet of drainage ditch (this includes the ditch along the railroad spur and railroad tracks). In addition, approximately 0.1 acres of State Isolated Wetlands are proposed to be disturbed by remediation and restoration.
- Mitigation ratio for areas of permanent disturbance is typically between 3:1 (ACOE) and 4:1
 (IDEM). Current design does not provide sufficient area to perform on-site mitigation at

anticipated ratios. Encroachment must be minimized to reduce required amount of mitigation and provide space for mitigation.

- Storm water drainage features (including wetlands within the storm water basin) cannot be counted towards mitigation.
- We are required to obtain the following permits for wetlands and water quality:
 - Site Specific Individual Section 401 Water Quality Certification (WQC) from IDEM (because the cumulative impacted area is >0.10 acres);
 - Nationwide Permit 38 (from ACOE) for Section 404 discharge of dredged or fill material into Water of the United States; and
 - IDEM Isolated Wetlands General Permit for discharge of dredged or fill material into state isolated wetlands.
 - Remediation of the drainage ditches along the railroad tracks does not meet the ACOE exemption for Maintenance of Drainage Ditches under Section 404 of the Clean Water Act. But if we modify the restoration of the drainage ditch to eliminate the rip-rap channel lining and utilize a soft/natural restoration (such as vegetation with periodic check dams) then the work can be included as an element of the NP-38 permit.
- Issuance of the Section 401 and Section 404 permits require that any activities involving the disturbance or filling of wetlands <u>first be subject to avoidance and minimization</u> to the maximum extent practicable. NP-38 and WQC must include a written report regarding how the design avoids and minimizes wetlands encroachment. Discussions ensued about rotating the containment cell to reduce the amount of wetlands disturbed. It was also agreed that there would be benefits to removing the mounds of dredged material between the wetlands and ditch along the west side of the rail spur to integrate these two areas.
- L. Lindley stated that the Hickory Trees in the wooded areas are also preferred habitat for the Indiana Bat, an endangered species, that must be avoided and that clearing can only be completed between the months of October 1 and March 31. The contact for more information about the Indiana Bat is Mike Litwin at the US Fish & Wildlife Service, in the Bloomington Field Office. Documentation regarding presence or absence of endangered species or protected habitat must be provided with the NP-38 submission.

The required activities and estimated time frame to proceed with permitting as developed during the meeting and during a subsequent conference call with Jonathan Adenuga will be:

 Prepare conceptual sketch showing anticipated changes to the design for review by USEPA and USEPA's contractor. Est. 1 week.

- Prepare preliminary design modifications for informal review and discussions with USEPA and USEPA's contractor. Also provide copies of preliminary design modification to ACOE and IDEM for initial input and recommendation. Est. 2 weeks.
- Finalize modifications to the CMD to reduce amount of wetlands impact. Est. 4 weeks.
- USEPA review of CMS Design modifications. Est. 2 to 4 weeks
- Finalize CMD modifications based on USEPA comments. Est. 2 weeks.
- Prepare NP-38 and Individual WQC applications coincident with CMD finalization, plus 2 weeks. Submit both applications simultaneously.
- Site Specific Individual Section 401 Water Quality Certification approx. 90 days for review.
- **Section 404 Permits Nationwide Permit 38** 60 to 90 days (concurrent with 401 review)
- IDEM Isolated Wetlands General Permit (specific to state isolated wetlands only) 30 days. Can be completed concurrent with WQC.
- City of Indy Drainage Permit revision Storm water design and management are dictated by the City of Indianapolis so the design modification relative to storm water will be require review and re-issuance of the Storm Drainage permit by the City.

Based on the estimated timeframes shown above approximately 5 months will be required to modify the design and complete the Section 401 and 404 permitting.

647-304-2349

IDEM

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment,

Mitchell E. Daniels Jr. Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue Indianapolis, Indiana 46204 (317) 232-8603 Toll Free (800) 451-6027 www.idem.lN.gov

October 18, 2012

Mr. Matt Love Director – Global Environmental Remediation Exide Technologies P.O. Box 14294 Reading, PA 19612-4294

Dear Mr. Love:

Re: Monitoring Well Inspection October 5, 2012 Refined Metals Corporation Marion County EPA ID # IND000718130

On October 5, 2012, Mr. Marty Harmless of my staff inspected the ground water monitoring wells located at Refined Metals Corporation (RMC). A facility representative did not accompany Mr. Harmless during the well inspection. The purpose of a monitoring well inspection is to evaluate the maintenance and integrity of monitoring well components observable at the wellhead. Proper maintenance is essential for collecting representative samples and determining static water level elevations.

Our Well Inspection Sheets and monitoring well photographs record the condition of each monitoring well. You can view the Well Inspection Sheets, Verification of Inspection Sheet, and photographs that document our findings at http://vfc.idem.IN.gov. The VFC number for this documentation is 66968384.

At the conclusion of the well inspection, Mr. Harmless reviewed the findings and condition of the monitoring wells. The following well improvements are necessary to maintain the monitoring wells and comply with 329 IAC 3.1-10 and 40 CFR 265.

- Well identification labels are faded or not present on all wells. To ensure that data collected for a particular well are correctly associated with the well, please label the outside protective casings on all wells.
- Weep holes are not present on any of the wells. To ensure that water will drain from the space between the inner well casings and the outside protective casings, please install weep holes through the bases of the outside protective casings at all wells.



Surface pad and outer protective casing at MW-5 show signs of subsidence.
 Please install a new concrete surface pad and outer protective casing at MW-5 to prevent surface water runoff from entering the well annulus, hold the protective casing in place, and protect the well from accidental damage or vandalism. We recommend that you install the new concrete pad on top of the grout seal in a continuous pour with the bottom extending below the ground surface.

Please submit documentation of the improvements within 60 days of receipt of this letter. If you require additional time to complete the improvements, contact Mr. Harmless to determine a mutually agreeable period. We ask that you provide notice to Mr. Harmless 10 days before making improvements.

Thank you for assisting us with the inspection. If you have questions, please contact Mr. Harmless at mharmles@idem.lN.gov or call (317) 234-0597.

Sincerely,

John A. Guerrettaz, LPG Chief, Geology Section

Permits Branch

Office of Land Quality

cc: Marion County Health Department Paul Stratman, Advance Geoservices Ruth Jean, OLQ Marty Harmless, OLQ



Engineering for the Environment, Planning for People.

1055 Andrew Drive, Suite A West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

July 5, 2012

2003-1046-18

VIA FEDERAL EXPRESS

Mr. Laban Lindley U.S. Army Corps of Engineers Indianapolis Field Office 9799 Billings Road Indianapolis, IN 46216

RE: Request for a Jurisdictional Determination

Former Refined Metals Facility 3700 South Arlington Avenue

Beech Grove, Indiana

Corps ID No. LRL-2012-107 lcl

Dear Mr. Lindley:

Attached please find two hard copies and one electronic copy of the revised Wetlands Delineation Report prepared by Keramida Environmental, Inc. (dated July 3, 2012) for the above-referenced facility. This revised Wetlands Delineation Report includes soils information and photographs as requested. We believe this provides the additional information required for completion of the Jurisdictional Determination.

If you have any questions, please contact me at 601-840-9122. We appreciate your efforts to help expedite this process.

Sincerely,

ADVANCED GEOSERVICES CORP.

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

Enclosures

cc: Matthew Love, Exide (one hard copy)



401 North College Avenue Indianapolis, Indiana 46202 (317) 685-6600 • Fax (317) 685-6610 1-800-508-8034

keramida@keramida.com • www.keramida.com

July 3, 2012

Mr. Paul Stratman Advanced GeoServices 1055 Andrew Drive West Chester, PA 19380

Re: Wetland Delineation Report

Former Refined Metals Property

3700 S. Arlington Avenue

Beech Grove, Marion County, Indiana

KERAMIDA Project No. 14908

Dear Mr. Stratman,

KERAMIDA Environmental, Inc. (KERAMIDA) is pleased to submit this report of findings for the wetland delineation at the above-referenced Site. The Site, comprising approximately 24 acres of land, is located at the former Refined Metals property, at 3700 S. Arlington Avenue, Beech Grove, Marion County, Indiana. The purpose of the delineation was to establish the boundaries of wetland areas that were identified at the Site in previous investigations. The delineations were conducted in two separate field events and focused on two separate areas of the Site. The delineation events are discussed further below. It should be noted that the wetland in Area 1 was fully delineated in July 2011 and previously reported to and approved by the U.S. Army Corps of Engineers (USACE). The discussion of Area 1 is included in this document for reference purposes and to provide a single complete report for submittal to USACE. The wetlands in Area 2 were delineated in April 2012.

METHODOLOGY AND FINDINGS

Area 1

KERAMIDA identified a wetland area during a previous wetland determination field survey, documented in a Wetland Determination Report dated June 27, 2011 (June 2011 Wetland Determination). The wetland identified during the wetland determination was in a wooded/grassy boundary area near the northeastern portion of the Site (refer to Figure 1). This location is hereinafter referred to as Area 1.

KERAMIDA conducted a Site visit on July 14, 2011 to collect data points from Area 1 to determine the boundaries of the wetland with respect to the Site. As observed at the time of the field work, the wetland in Area 1 exhibited hydric soil and hydrologic wetland indicators. The sampling area was slightly concave with water marks apparent on nearby vegetation, indicating that water had once stood in the area. However, very little active vegetation growth was observed within the wetland. As discussed in the June 2011 Wetland Determination, a review of aerial photographs and satellite imagery indicated that the area is inundated during part of the

year. This evidence suggested that hydrophytic vegetation would most likely grow in the area given the proper conditions and, therefore, the area is a wetland. Delineation of this wetland, given the absence of significant vegetation growth, was based primarily on the presence of hydric soil and hydrologic indicators

Sampling points were selected from the grassy lawn south of the wetland, from within the wetland itself, and from the wooded area bordering the northern portion of the wetland (refer to Figure 2a for sampling point locations). Each sampling point was analyzed for the presence of hydric soils, wetland hydrology and hydrophytic vegetation. The observations at each sampling point were recorded on Field Data Forms, which are enclosed herein.

Based on the visual characteristics of the wetland, and verified through the data collected from the sampling points, stakes and survey flags were placed around the boundaries of the wet prairie-type wetland (see Figure 3a). Measurements based off of the staked boundaries yielded a calculated area for the wetland of approximately 0.2 acre.

Area 2

During the USACE Jurisdictional Determination (JD) process, additional suspect wetlands were identified. The suspect wetlands were situated in a wooded area on the northern portion of the Site (refer to Figure 1). This location is hereinafter referred to as Area 2.

KERAMIDA conducted Site visits on April 23, 26, and 27, 2012 to collect data points from within Area 2 to determine the boundaries of the wetlands with respect to the Site. As observed at the time of the field work, Area 2 is a heavily wooded area characterized by varied topography, containing hummocks and small hills, as well as low-lying, partially inundated areas. A historic rail siding runs through Area 2, with ditches present on either side of the former rail siding. The wetlands identified during the USACE JD process are generally located adjacent to the ditches.

The low-lying, partially inundated portions of Area 2, generally located adjacent to the rail siding ditches, exhibited hydrophytic vegetation, hydric soil, and hydrologic wetland indicators, meaning that they would be classified as wetlands. The purpose of KERAMIDA's field activities was to delineate these wetlands within Area 2. Due to the generally homogeneous soil conditions and prevalence of several wetland indicator plants throughout Area 2, delineation of these wetlands was based primarily on the presence of hydrologic indicators and variations in surface topography.

Sampling points were selected from within Area 2 (refer to Figure 2b for sampling point locations). Each sampling point was analyzed for the presence of hydric soils, wetland hydrology and hydrophytic vegetation. The observations at each sampling point were recorded on Field Data Forms, which are enclosed herein.

Based on the visual characteristics of the wetlands observed in Area 2, and verified through the data collected from the sampling points, stakes and survey flags were placed around the boundaries of three floodplain forest-type wetlands (see Figure 3b). Measurements based off of the staked boundaries yielded a total calculated area for the three wetlands of approximately 0.51

acre. The individual wetland areas (two on the west side of the rail siding, and one located near the northeast corner of the Site) are estimated at: 0.33 acre, 0.16 acre, and 0.11 acre, respectively.

Representative photographs of the respective wetland areas are attached to this document. Also included is a USDA soils map of the overall property (Figure 5).

CONCLUSIONS

Area 1

The closest Water of the U.S. relative to Area 1 is Sloan Ditch, located approximately 1,100 feet southeast. No connection to this or any other Water of the U.S. was found during the delineation or map review. Refer to Figure 4 (topographic map) for the location of Sloan Ditch relative to Area 1. Delineation of the wetland indicated the area is approximately 0.2 acre in size, with no identified connection to a Water of the U.S. Because the wetland does not abut or adjoin a Water of the U.S., it would be considered an isolated wetland, likely classified as a Class I or Class II wetland, as defined in Indiana Code 13-11-2-25.8.

Area 2

The wetlands in Area 2 are located generally adjacent to the ditches that run alongside a former rail spur on the property. The ditches are connected to the non-navigable Water of the U.S. Beech Creek, which is a tributary of Lick Creek. Because of the connection to a Water of the U.S., the ditches, and therefore the adjacent wetland areas, fall under the jurisdiction of USACE. It is anticipated that USACE permitting requirements will apply if the wetlands are to be disturbed.

If you have any questions concerning this information, please contact Colin Keith at (317) 685-6617. Thank you for the opportunity to assist you with this project.

Sincerely,

KERAMIDA Environmental, Inc.

lot kins

Colin Keith

Project Scientist

Douglas B. Zabonick, P.E.

President

Enclosures



<u>Legend</u> Approximate Site Boundary:

Image Source: IMAGIS, 2010 Aerial



Figure 1 Site Map Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by : CK

Approved by: CH

Date : 5/22/12

Scale: as noted





<u>Legend</u> Wetland Data Point: ⊗



Image Source: IMAGIS, 2010 Aerial



Figure 2a Sampling Point Location Map - Area 1 Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by: CK Approved by: CH Date: 5/22/12

Scale: as noted







Image Source: IMAGIS, 2010 Aerial

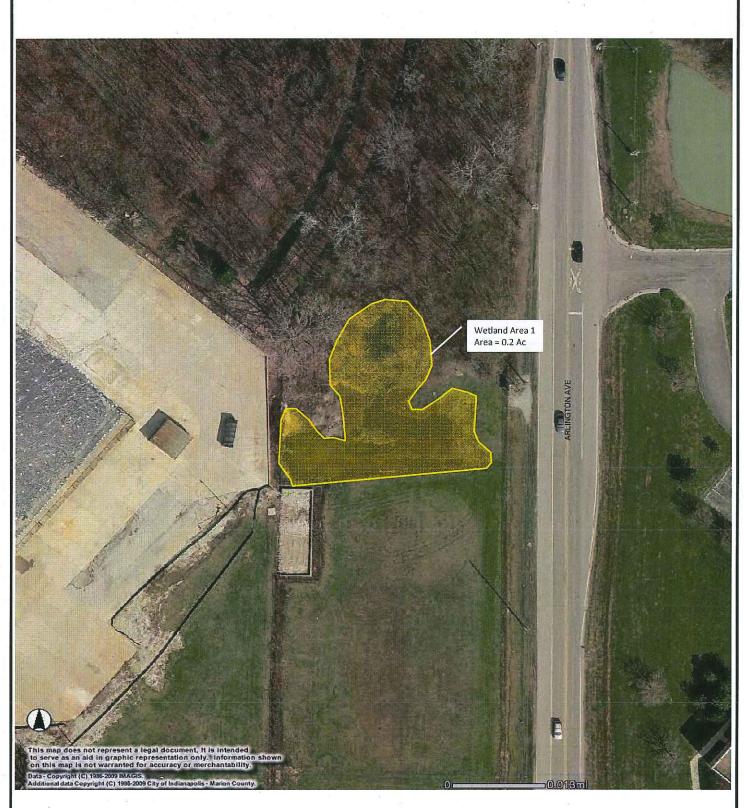


Figure 2b Sampling Point Location Map - Area 2 Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by: CK

Approved by: CH Date : 5/22/12





<u>Legend</u> Approximate Wetland Boundary:

Image Source: IMAGIS, 2010 Aerial



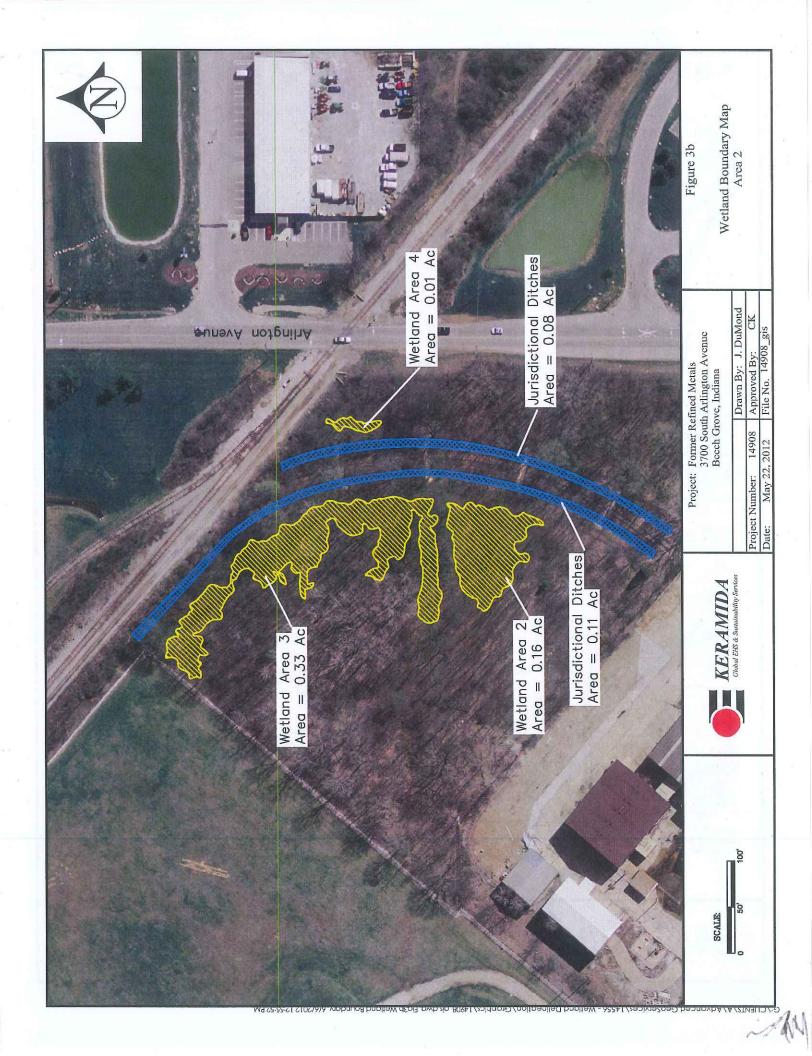
Figure 3a Wetland Boundary Map - Area 1 Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana Prepared by : CK

Approved by: CH

Date : 5/22/12

Scale: as noted





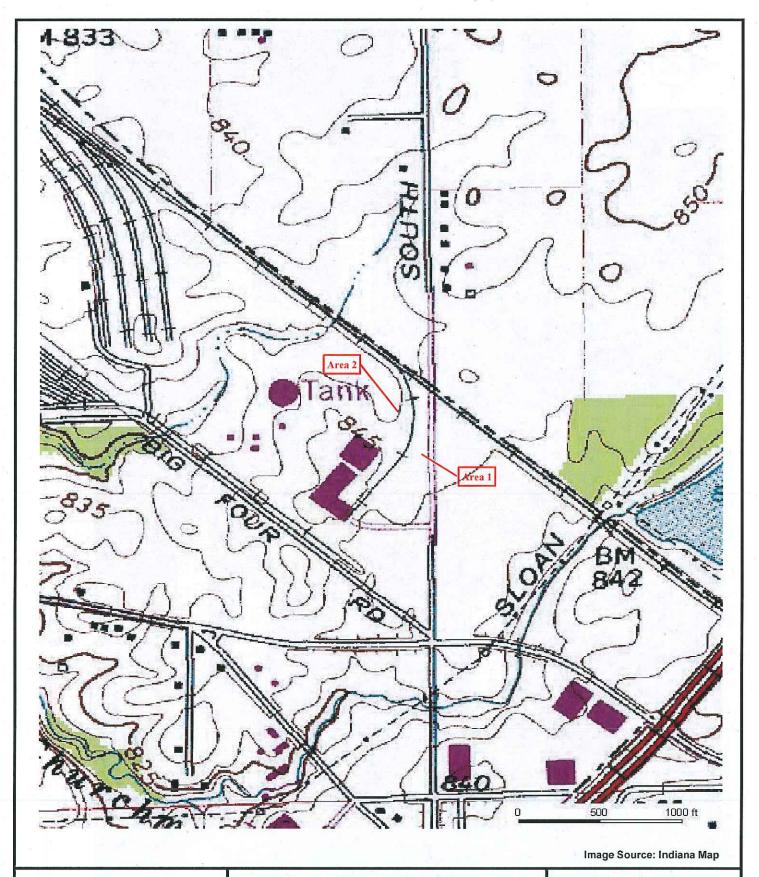




Figure 4 Topographic Map Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

 Prepared by :
 CK

 Approved by:
 CH

 Date :
 5/22/12

 Scale:
 as noted

 KEI Number :
 14908



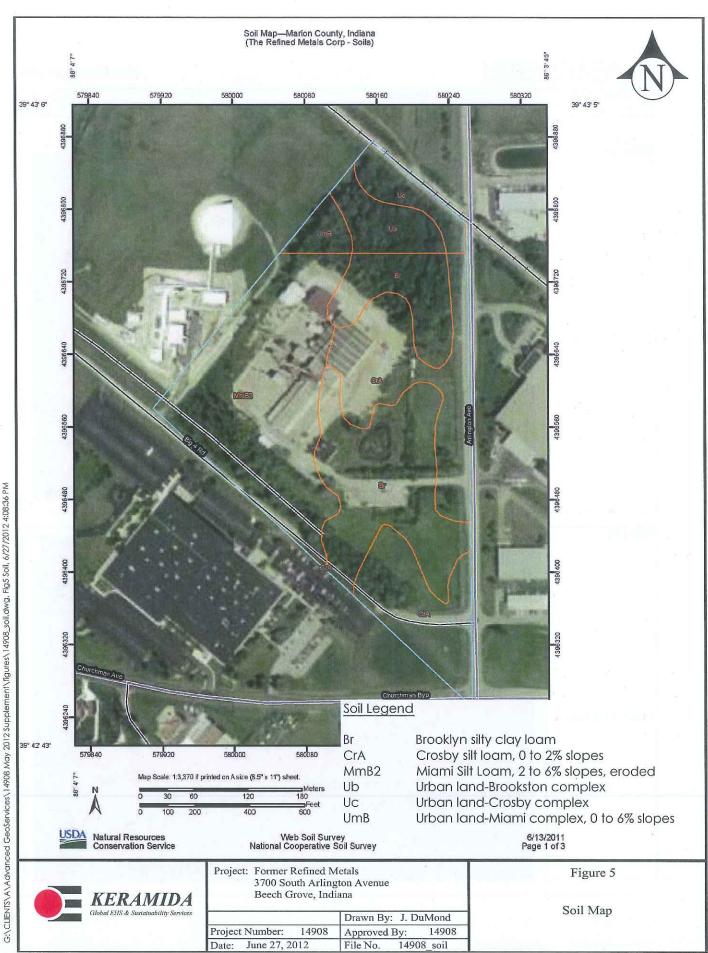




Photo Date:	Project:	Project #
	July 2, 2012 Former Refined Metals Property	14908

Photo #1



Wetland in Area 1.

Photo #2



Wetland 1 in Area 2.



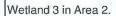
Photo Date:	Project:	Project #
	July 2, 2012 Former Refined Metals Property	14908

Photo #3



Wetland 2 in Area 2.







WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Former Refined Metals Corp		City/Co	ounty: B	leech Grove/	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoService	ces		State:	IN		Sampling Point:	: WD-1
Investigator(s): Colin Keith, KERAMIDA			Section	on, Township	o, Range:	2	27-15N-4E
Landform (hillslope, terrace, etc.):	Woodland		Local r	elief (concav	e, convex	(, none):	Slight Concave
Slope (%): 0 Lat:	39.71655		Long:	86.06432	:5	Datum:	WGS84
Soil Map Unit Name Brookston silty clay lo	oam			vwi c	Classificat	tion:	Not Classified
Are climatic/hydrologic conditions of the s	site typical for this	s time of t	the year?	<u>Y</u> (I	f no, expl	ain in remarks)	
Are vegetation, soil	, or hydrology	{	significantly	y disturbed?		Are "normal circ	cumstances"
Are vegetation, soil	, or hydrology	r	naturally pro	oblematic?		•	present? Yes
SUMMARY OF FINDINGS					(If need	led, explain any	answers in remarks.)
Hydrophytic vegetation present?	Υ				-		
Hydric soil present?	Υ .		Is the s	ampled area	ı within a	wetlan(<u>N</u>
Wetland hydrology present?	N .		fyes, op	tional wetlan	d site ID:		
Remarks: (Explain alternative procedures	here or in a sep	arate rep	 ort.)				
Thomas (Explain anomalie present			21,				•
VEGETATION Use scientific nam	ege of plants			<u></u>			
VEGETATION 056,5000 mino man		solute [Dominan	Indicator	Domina	ance Test Work	sheet
Tree Stratum (Plot size:	·= ·		t Species	Staus	- +	of Dominant Spe	
1 Fraxinus pennsylvanica		20	Υ	FACW		OBL, FACW, or f	
2					Total	Number of Domi	inant
3					Spec	cies Across all St	rata: 3 (B)
4						of Dominant Spe	
5					that are	OBL, FACW, or I	FAC: 100.00% (A/B)
Carling (Charle attractum (Plot circu	,	20 = 1	Total Cover	ſ	Drovale	Indox Mor	l-shant
Sapling/Shrub stratum (Plot size: 1 Acer negundo	,	20	Y	FACW		ence Index Wor Cover of:	Ksheet
2 Lonicera morrowii			1	NI NI	OBL sp		x 1 = 0
3					FACW :		x = 2 = 80
4	***************************************				FAC sp	·	x 3 = 30
5					FACU s		x 4 = 0
		20 = T	Total Cover		UPL spe		x 5 = 0
Herb stratum (Plot size:)				Column		(A) <u>110</u> (B)
1 Lonicera morrowii				NI	Prevale	nce Index = B/A	2.20
2 Parthenocissus quinquefolia		10	<u> </u>	<u>FAC</u>	1 to almost	*	*
3						hytic Vegetatio	
5				<u></u>		old test for nydro ninance test is >	phytic vegetation
6						valence index is	
7						rphogical adapta	•
8							Remarks or on a
9						arate sheet)	
10					Pro	blematic hydrop	hytic vegetation*
		10 = T	Total Cover		(exp	olain)	
Woody vine stratum (Plot size:1)				ı	present, unless disti	d wetland hydrology must be urbed or problematic
2					_	rophytic	
· .		0 = T	Total Cover			etation sent?	Y
Remarks: (Include photo numbers here or	r on a separate si	neet)					

Sampling Point:

WD-1

Profile Des	cription: (Descri	be to th	e depth needed	to docu	ment the	indicat	or or confirm the	absence of in	dicators.)
Depth	<u>Matrix</u>		Red	dox Feat	ures			·	
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
0-18	10 YR 3/2	80	10 YR 5/6	20	RM	М	SCL		
				<u> </u>	ļ		**************************************		
	***************************************							1	,
	1								
						<u> </u>			
		<u> </u>		<u> </u>	<u> </u>	<u> </u>			
*Type: C = 0	Concentration, D :	= Depleti	on, RM = Reduce	ed Matrix	, MS = N	/lasked S	and Grains.	**Location: PL =	Pore Lining, M = Matrix
Hydric Sc	il Indicators:				,		Indicators f	or Problematic	: Hydric Soils:
His	tisol (A1)		Sar	ndy Gley	ed Matrix	(S4)	Coast P	rairie Redox (A	16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo		. ,		rface (S7) (LRF	
	ck Histic (A3)			-	atrix (S6)				at (S3) (LRR K, L, R)
	drogen Sulfide (A	4)			ky Miner	al (F1)			es (F12) (LRR K, L, R)
	atified Layers (A5	,		•	ed Matri	` '		allow Dark Surf	
	m Muck (A10)	,			atrix (F3)			explain in remar	
	oleted Below Dark	Surface			Surface			Apidii iii Tottidii	,
	ck Dark Surface (· · —		ark Surfa	. ,	*Indiaa+a-	a of hudranh	vocatation and walter-
	ndy Mucky Minera		·		ressions				c vegetation and weltand ent, unless disturbed or
	m Mucky Peat or			ox pehi	65510115	(ГО)	пуагою	y must be pres proble	
		•	')					proble	
Restrictive	Layer (if observ	ed):							
Type:						1	Hydric so	il present?	Υ
Depth (inch	es):				-	İ			
Remarks:						<u> </u>			
	•								
HYDROL	OGY							CHANGE THE CONTRACT OF THE PARTY OF THE CONTRACT OF THE CONTRA	
Wetland Hy	drology Indicate	ors:							
Primary Ind	icators (minimum	of one is	required: check	all that a	(vlage		Seco	ndary Indicators	(minimum of two required)
	Water (A1)				Fauna (E	313)		Surface Soil Cr	
	ater Table (A2)				uatic Pla			Drainage Patte	
Saturati			.,,		en Sulfide			Dry-Season Wa	
	/larks (B1)		<u></u>					Crayfish Burrov	
	nt Deposits (B2)			(C3)					ole on Aerial Imagery (C9)
	posits (B3)		***************************************	- ` '	ce of Red	uced Iron	n (C4)		ssed Plants (D1)
	at or Crust (B4)		entrantin.	_			Tilled Soils	Geomorphic Po	` '
	posits (B5)			(C6)				FAC-Neutral Te	* *
	ion Visible on Aeri	al Imager	v (B7)		ick Surfa	ce (C7)		•	(= 2)
	y Vegetated Conc			_	or Well D				
	Stained Leaves (B9		. ,		Explain in		s)		
Field Obse	•	·····			4		·	T	
1	ter present?	Yes	No		Donth ((inches):		Wetland	
Water table	•	Yes	No			inches):		hydrology	u'
Saturation p	•	Yes	No		_ ' '	(inches):		present?	N
	apillary fringe)	163	,40		- Dobin (,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		hieaent:	1.4
							· · · · · · · · · · · · · · ·		
Describe re	corded data (stre	am gaug	e, monitoring we	ıı, aeriai	pnotos, p	previous i	inspections), if av	allable:	
Remarks:								,	
i lemains.									

Project/Site Former Refined Metals Corp		City/0	County: E	Beech Grove/	Marion	Sampling Date	e:4/23/12
Applicant/Owner: Advanced GeoService	es		State: IN			Sampling Point: WD-2	
Investigator(s): Colin Keith, KERAMIDA			Sect	ion, Townshi	p, Range:	- . :	27-15N-4E
Landform (hillslope, terrace, etc.):	Woodl	and	Local :	relief (concav	/e, conve	x, none):	Slight Concave
Slope (%): 0 Lat:	39.716633		Long:	86.06430		Datum:	WGS84
Soil Map Unit Name Brookston silty clay lo	am		<u> </u>	١W١	Classifica	tion:	Not Classified
Are climatic/hydrologic conditions of the si		this time o	f the vear?	Υ (If no, expl	ain in remarks)	
Are vegetation , soil	, or hydrolo			y disturbed?		Are "normal ci	
Are vegetation , soil	, or hydrold			roblematic?		Are Hollian Ci	present? Yes
SUMMARY OF FINDINGS	, 0. 1., 0.0.	.a.,			(If need	fed. explain anv	answers in remarks.)
Hydrophytic vegetation present?	Υ					, . , . , . , . , . , . ,	
Hydric soil present?	<u>,</u> Y		is the s	sampled are	a within a	a wetlan	Υ
Wetland hydrology present?	Ÿ			otional wetlar			
				olional Hollar	14 0110 12		
Remarks: (Explain alternative procedures	nere or in a s	separate re	эроп.)				
VEGETATION Use scientific name	es of plants	s.					
		Absolute	Dominan	Indicator	Domin	ance Test Wor	ksheet
Tree Stratum (Plot size:)	% Cover	t Species	Staus		of Dominant Sp	
1 Fraxinus pennsylvanica		80	Y	FACW_		OBL, FACW, or	``
2				***************************************		l Number of Don cles Across all S	
4		·				of Dominant Sp	
5		-	 .				FAC: 100.00% (A/B)
- Marketter Parketter		80	= Total Cove	<u></u>			` ′
Sapling/Shrub stratum (Plot size:)				Prevale	ence Index Wo	rksheet
1 Acer negundo		20	Y	_FACW_	Total %	Cover of:	
2 Lonicera morrowii				NI	OBL sp		_ x 1 =0
3						· -	x 2 = 360
4					FAC sp		- x 3 = 0
5		20	= Total Cove		UPL sp	species 0	$- \begin{array}{ccc} x & 4 = & 0 \\ x & 5 = & 0 \end{array}$
Herb stratum (Plot size:	١.	20	= Total Cove	ij	Column		
	/			· KII	,	ence Index = B/a	· · · · · · · · · · · · · · · · · ·
1 Lonicera morrowii 2 Fraxinus pennsylvanica		80		FACW	Prevale	ence maex = b/i	H = <u>2.00</u>
3				TAOW	Hydror	hytic Vegetati	on Indicators:
4					1		ophytic vegetation
5					. ·	minance test is	
6					X Pre	valence index i	s ≤3.0*
7					— Мо	rphogical adapt	tations* (provide
8					sup	porting data in	Remarks or on a
9	,					parate sheet)	•
10		80	=Total Cove	er		oblematic hydro plain)	phytic vegetation*
Woody vine stratum (Plot size:1)						nd wetland hydrology must be sturbed or problematic
2						drophytic	
		0 :	■ Total Cove	r		getation esent?	Y
Remarks: (Include photo numbers here or	on a separat	e sheet)					
1	•	,					

Sampling Point:

WD-2

Profile Desc	ription: (Descr	be to th	e depth needed	to docu	ment the	indicate	or or confirm the	absence of indicators.)
Depth	<u>Matrix</u>		Re	dox Feat	ures			
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-18	10 YR 4/1	90	7.5 YR 5/6	10	RM	М	SCL.	The second secon
					<u> </u>			
				 	 			· · · · · · · · · · · · · · · · · · ·
				1				<u> </u>
					<u> </u>			
		ļ	ļ					
					<u> </u>			
]			
*Type: C = C	Concentration, D	= Depleti	ion, RM = Reduc	ed Matrix	, MS = N	/lasked S	and Grains. **	Location: PL = Pore Lining, M = Matrix
	il Indicators:		· · · · · · · · · · · · · · · · · · ·		<u></u>			Problematic Hydric Soils:
-	isol (A1)		Sa	ndy Gley	ed Matrix	(S4)		irie Redox (A16) (LRR K, L, R)
***************************************	ic Epipedon (A2)			ndy Redo		(01)		ace (S7) (LRR K, L)
*************	ck Histic (A3)			ipped Ma				ky Peat or Peat (S3) (LRR K, L, R)
	, ,	4)				-1 (F4)		
	rogen Sulfide (A			amy Muc				ganese Masses (F12) (LRR K, L, R)
	tified Layers (A5)		amy Gley				low Dark Surface (TF12)
	n Muck (A10)			pleted M			Other (ex	olain in remarks)
	leted Below Darl		· · ·	dox Dark		. ,		
	ck Dark Surface (pleted Da			*Indicators	of hydrophytic vegetation and weltand
San	dy Mucky Minera	al (S1)	Re	dox Depi	essions	(F8)	hydrology	must be present, unless disturbed or
5 cr	n Mucky Peat or	Peat (S3	3)					problematic
Poetrictivo	Layer (if observ	od\:				T		
Type:	Layer (II Observ	euj.					Hydric soil	procent? V
					-		Hydric Son	bieseiff: 1
Depth (inche	es):				-			
HYDROLO	DGY							
Wetland Hy	drology Indicate	ors:						
Primary Indi	cators (minimum	of one is	s required; check	all that a	apply)		Second	lary Indicators (minimum of two requir
Surface	Water (A1)			Aquatic	Fauna (E	313)	- 5	Surface Soil Cracks (B6)
	ater Table (A2)					nts (B14)		Prainage Patterns (B10)
X Saturation	, ,					Oďor (Ć		Ory-Season Water Table (C2)
	larks (B1)							Crayfish Burrows (C8)
	nt Deposits (B2)			(C3)				Saturation Visible on Aerial Imagery (C9)
X Drift Dep				` ´	ce of Red	uced Iron		Stunted or Stressed Plants (D1)
	at or Crust (B4)			_			· · ·	Reomorphic Position (D2)
	osits (B5)			(C6)				FAC-Neutral Test (D5)
	on Visible on Aeria	a! Imager	v (B7)	` ′	ick Surfa	ce (C7)	<u>-</u>	710 11000 00 (20)
	/ Vegetated Conc			_	or Well D			
	tained Leaves (B9					Remarks	:1	
		·)	<u> </u>		- Дридит и	Tromanc	·/	
Field Obser		Yes	Al-	v	Donth (inches):		Wetland
Surface wat Water table		Yes	X No	X		inches): inches):	12	hydrology
	,					inches):	16	
Saturation p	pillary fringe)	Yes	X No	BOROCOLUMN AND AND	_ nebtu (inches):		present? Y
Describe red	corded data (stre	am gaug	je, monitoring we	II, aerial	photos, p	revious i	nspections), if avai	lable:
Remarks:					· · · · · · · · · · · · · · · · · · ·			
1								

Project/Site Former Refined Metals Corp	City	//County: E	Beech Grove	Marion Sar	npling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State:	IN	San	npling Point:	WD-3
Investigator(s): Colin Keith, KERAMIDA		Sect	ion, Townshi	p, Range:	27-15	N-4E
Landform (hillslope, terrace, etc.):	Woodland	Local	relief (concav	/e, convex, no	ne): Slig	ht Concave
Slope (%): 0 Lat:	39.71675	Long:	86.06458	31 Dat	um:	WGS84
Soil Map Unit Name Brookston silty clay loa	n		IWI	Classification:	Not 0	Classified
Are climatic/hydrologic conditions of the site	typical for this time	of the year?	<u> </u>	if no, explain ir	n remarks)	
Are vegetation , soil	or hydrology	significantl	ly disturbed?	Are	"normal circums	stances"
Are vegetation , soil	or hydrology	– naturally p	roblematic?			resent? Yes
SUMMARY OF FINDINGS		- ' '		(If needed, a	explain any ansv	vers in remarks.)
Hydrophytic vegetation present?	Υ .					
Hydric soil present?	y .	Is the	sampled are	a within a wet	tlan∈ Y	
Wetland hydrology present?		f yes, o	ptional wetlar	nd site ID:	Wetland Area 2	
Remarks: (Explain alternative procedures he	ura or in a canarata i	report)				
Themarks: (Explain alternative procedures in	ere or iii a separate i	report.)				
VEGETATION Use scientific name:	of plants					
VEGETATION Use scientific frame:	Absolute	Dominan	Indicator	Dominance	Test Workshee	. †
Tree Stratum (Plot size:) % Cover		Staus		ominant Species	7 1
1 Fraxinus pennsylvanica		Υ	FACW		, FACW, or FAC:	5 (A)
2				Total Num	nber of Dominant	``
3				Species /	Across all Strata:	5 (B)
4			F-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		ominant Species	_
5		 		that are OBL,	, FACW, or FAC:	100.00% (A/B)
Carling/Ohm/hatmatum/Platainn	, 60	= Total Cove	er	Duarralamaa	lundare Manufeale	
Sapling/Shrub stratum (Plot size:)	Y	FACW	Total % Cov	Index Workshe	et .
2 Lonicera morrowii	10		NI	OBL species		= 0
3 Fraxinus pennsylvanica			FACW	FACW spec		
4				FAC species		= 285
5				FACU speci	ies 0 x 4	= 0
	15	= Total Cove	er	UPL species		
Herb stratum (Plot size:)			Column tota	lls <u>170</u> (A)	435 (B)
1 Zizia aurea	95	Y	FAC	Prevalence	Index = B/A =	2.56
2				l for all up a salas at !	. Vanatatian in	dia atawa
3					c Vegetation Inc est for hydrophyt	
5		· · · · · · · · · · · · · · · · · · ·			nce test is >50%	
6		- ——			nce index is ≤3.0	
7				Morpho	gical adaptations	* (provide
8					ing data in Rema	
9	. "		·	separate		
10		·			natic hydrophytic	vegetation*
	95	_= Total Cove	er	— (explain)	
Woody vine stratum (Plot size:	<u> </u>		E40		•	and hydrology must be
1 Toxicodendron radicans subsp. negur. 2	<u>do 5</u>	<u> </u>	FAC	prese Hydrop	nt, unless disturbed	or problematic
		= Total Cove		vegetat	-	
		- 10141 0010	''	present	? <u>Y</u>	
Remarks: (Include photo numbers here or or	a separate sheet)					
	,					
					-	

_	_		-	
	•	R		
	ų,	R	2	

Sampling Point:

WD-3

Profile Des	cription: (Descri	ibe to th	e depth needed	to docu	ment the	indicat	or or confirm the	e absence of indi	cators.)
Depth	Matrix		Red	dox Feat	ures			•	
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
0-18	10 YR 3/2	90	7.5 YR 5/6	10	RM	М	SCL		
				1					
					·				
TO OUT		 		-		-			
				<u> </u>					
				<u> </u>		<u> </u>]		
'Type: C = 0	Concentration, D	= Depleti	on, RM = Reduce	ed Matrix	k, MS = N	/lasked S	and Grains.	**Location: PL = F	ore Lining, M = Matrix
Hydric So	oil Indicators:						Indicators f	or Problematic H	lydric Soils:
His	tisol (A1)		Sar	ndy Gley	ed Matrix	(S4)	Coast P	rairie Redox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	ndy Redo	ox (S5)		Dark Sເ	ırface (S7) (LRR K	(, L)
	ck Histic (A3)		Stri	pped Ma	atrix (S6)		5 cm Mi	ucky Peat or Peat	(S3) (LRR K, L, R)
	drogen Sulfide (A	4)			ky Miner				(F12) (LRR K, L, R)
	atified Layers (A5				ed Matri:			allow Dark Surfac	
	m Muck (A10)	•	Property and the second		atrix (F3)			explain in remarks	
	pleted Below Dark	CSurface			Surface			,	,
	ck Dark Surface (ark Surfa		*Indicator	rs of hydrophytic y	egetation and weltand
	ndy Mucky Minera				ressions	. ,			t, unless disturbed or
	m Mucky Peat or	. ,		oon Dop.	00010110	(1 0)	πyαιοιοξ	problem	
			''					,problem	ano
	Layer (if observ	ed):				ŀ			
Type:							Hydric so	il present? Y	′
Depth (inch	es):								
Remarks:									
HYDROL									
Wetland Hy	ydrology Indicate	ors:							
Primary Ind	icators (minimum	of one is	required; check	all that a	apply)		<u>Seco</u>	ndary Indicators (r	minimum of two required
Surface	Water (A1)			Aquatic	Fauna (E	313)		Surface Soil Crack	ks (B6)
X High W	ater Table (A2)			True Ac	uatic Pla	nts (B14)		Drainage Patterns	
Saturati	ion (A3)		Brooders Correct	 Hydroge	en Sulfide	Odor (C	1)	Dry-Season Wate	
Water N	Marks (B1)			Oxidize	d Rhizosp	oheres on	Living Roots	Crayfish Burrows	(C8)
Sedime	nt Deposits (B2)			(C3)					on Aerial Imagery (C9)
X Drift De	posits (B3)		· · · · · ·	Presen	ce of Red	luced Iron	n (C4)	Stunted or Stress	ed Plants (D1)
Algal M	at or Crust (B4)			Recent	Iron Red	uction in 1	Tilled Soils	Geomorphic Posit	ion (D2)
	posits (B5)			(C6)				FAC-Neutral Test	(D5)
	ion Visible on Aeri:	_		Thin Mu	uck Surfa	ce (C7)		-	
	y Vegetated Conc		ice (B8)	_ ~	or Well D	. ,			
X Water-9	Stained Leaves (B9	€)		Other (I	Explain in	Remarks	3)		
Field Obse	rvations:						.,		
Surface wa	ter present?	Yes	No	Χ	Depth ((inches):		Wetland	
Water table		Yes	X No		Depth (inches):	12	hydrology	
Saturation	oresent?	Yes	X No		Depth (inches):		present?	Υ
(includes ca	apillary fringe)				•••		<u> </u>		
Describe re	corded data (stre	am gauc	e, monitorina we	II. aerial I	photos, p	revious i	inspections), if av	ailable:	
	,		J	. "					
Remarks:									

Project/Site Former Refined Metals Corp	City/	County: B	eech Grove/	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State:	. IN		WD-4	
Investigator(s): Colin Keith, KERAMIDA		Secti	on, Townshi	p, Range		'-15N-4E
Landform (hillslope, terrace, etc.): Wood	iland	Local r	elief (concav	e, conve	x, none):	None
Slope (%): 0 Lat: 39.716839)	Long:	86.06470	06	Datum:	WGS84
Soil Map Unit Name Brookston silty clay loam			/WI+	Classifica	ation: N	ot Classified
Are climatic/hydrologic conditions of the site typical for	r this time o	f the year?	<u>Y</u> (I	f no, exp	lain in remarks)	
Are vegetation , soil , or hydro	logy	significantly	disturbed?		Are "normal circu	ımstances"
	logy		oblematic?	•		present? Yes
SUMMARY OF FINDINGS				(If nee	ded, explain any a	nswers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? N		Is the s	ampled area	a within	a wetlanı N	
Wetland hydrology present?		f yes, op	tional wetlar	nd site ID	:	
Remarks: (Explain alternative procedures here or in a	separate re	anort)				
Themains. (Explain alternative procedures here or in a	separate re	sport.)				
LEGET ATION AND AND AND AND AND AND AND AND AND AN						
VEGETATION Use scientific names of plan				l Domin	ance Test Works	haat
<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominan t Species	Indicator Staus			
1 Carya ovata	70 70	Ү	FACU		r of Dominant Spec OBL, FACW, or FA	
2 Fraxinus pennsylvanica	20	<u> </u>	FACW	l	I Number of Domin	
3			**************************************		ecies Across all Stra	
4				Percen	t of Dominant Spec	ies
5				that are	OBL, FACW, or FA	AC: 66.67% (A/B)
	90	= Total Cove	•			_
Sapling/Shrub stratum (Plot size:)		N I I		ence Index Work	sheet
1 Lonicera morrowii 2		. ———	NI	OBL sp	6 Cover of: pecies 0 x	<1 = 0 ·
3			M			×2 = 40
4						(3 = 240
5					species 70	× 4 = 280
	0	= Total Cove	-	UPL sp	pecies 0	< 5 = <u>0</u>
Herb stratum (Plot size:				Columi	n totals 170	(A) <u>560</u> (B)
1 Lonicera morrowii			NI	Prevale	ence Index = B/A =	3.29
2 Parthenocissus quinquefolia	70	Y	FAC			
3 Toxicodendron radicans subsp. negundo	10	N	FAC		phytic Vegetation	
5					pid test for hydrop minance test is >5	
6			***************************************	***************************************	evalence index is ≤	
7					orphogical adaptati	
8					oporting data in Re	
9					parate sheet)	
10					oblematic hydrophy	ytic vegetation*
	80	=Total Cover	•	(ex	plain)	**
Woody vine stratum (Plot size:))			*Indica	tors of hydric soil and v present, unless distur	wetland hydrology must be
2		P.,		Hv	drophytic	bed of problematic
	0	= Total Cover	,		getation	
	=			pre	esent? Y	
Remarks: (Include photo numbers here or on a separa	ate sheet)					
			•			

		<u> </u>						Samplin		
	cription: (Descri	be to the				e indicat	or or confirm th	e absence of ir	ndicators.)	
Depth	<u>Matrix</u>			dox Feat						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Texture Rei		
0-18	10 YR 3/3	100					SCL			
			/////////////////////////////////////							
		 		 	·	ļ				
				ļ	<u> </u>	ļ	 			
······································				ļ		ļ				
			<u> </u>	<u> </u>						
							0.000			
	<u> </u>	i i				<u> </u>				
Tuno: C	Concentration, D =	Doplotic	- DM Doduo	ad Matrix	, NAC N	Anakadi S	l Croins	**Location: DI	= Pore Lining, M = Matrix	
	oil Indicators:	= Debletto:	i, nivi = necuc	ed Main	(, IVIS = N	naskeu c		for Problematic		
-	tisol (A1)		Sa	adu Clau	ad Matrix	, (CA)			16) (LRR K, L, R)	
	tic Epipedon (A2)			ndy Gley ndy Redo	ed Matrix	(34)		urface (S7) (LRi		
December 2011	ck Histic (A3)				atrix (S6)				eat (S3) (LRR K, L, R)	
	drogen Sulfide (A4	4)			ky Miner	al (E1)			es (F12) (LRR K, L, R)	
	atified Layers (A5)				red Matri			hallow Dark Sur		
	m Muck (A10)	,			atrix (F3)			explain in remar		
	pleted Below Dark	« Surface /			Surface			explain in remai	(13)	
	ck Dark Surface (ark Surfa		*Indianta	ra of budronbud	a vagatation and waltand	
	ndy Mucky Minera			•	aik Suna ressions				c vegetation and weltand ent, unless disturbed or	
	m Mucky Peat or		nc-	dox pebi	CSSIONS	(1 0)	Hydroio		ematic	
	<u> </u>					,		pi obik	mans	
	Layer (if observe	ed):				ĺ				
Туре:					_		Hydric so	oil present?	<u>N</u>	
Depth (inch	es):				-					
Remarks:				,,		_!				
			-							
HYDROL	OGY									
	ydrology Indicate	ors:							:	
	icators (minimum		equired; check	all that a	app[v]		Seco	ondary Indicator	s (minimum of two requir	
minute, mo	Water (A1)	OT OTTO TO T	adan ad, arrasii		Fauna (E	313)	<u> </u>	Surface Soil Cr		
Surface	Tracol (ril)							Drainage Patte		
	ater Table (A2)			True At	шанс ма	nts (B14)			rns (BTO)	
High W	ater Table (A2) ion (A3)					nts (B14) • Odor (C			,	
High W Saturat	ion (A3)			_ Hydrog	en Sulfide	Odor (C	1)	Dry-Season W	ater Table (C2)	
High W Saturat Water N	ion (A3) Marks (B1)		<u></u>	_ Hydrog	en Sulfide	Odor (C		Dry-Season W Crayfish Burrov	ater Table (C2) ws (C8)	
High W Saturat Water N Sedime	ion (A3)			Hydrogo Oxidize (C3)	en Sulfide d Rhizos	Odor (C	1) Living Roots	Dry-Season W Crayfish Burrov Saturation Visil	ater Table (C2) ws (C8)	
High W Saturat Water N Sedime	ion (A3) Marks (B1) ent Deposits (B2)			Hydrogo Oxidize (C3) Presend	en Sulfide d Rhizos ce of Red	Odor (C oheres or luced Iron	1) Living Roots	Dry-Season W Crayfish Burrov Saturation Visil	ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1)	
High W Saturat Water N Sedime Drift De	ion (A3) Marks (B1) ent Deposits (B2) eposits (B3)			Hydrogo Oxidize (C3) Presend	en Sulfide d Rhizos ce of Red	Odor (C oheres or luced Iron	1) I Living Roots	Dry-Season W Crayfish Burrov Saturation Visil Stunted or Stre	ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2)	
High W Saturat Water N Sedime Drift De Algal M	ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4)	al Imagery	(87)	Hydrogo Oxidize (C3) Present Recent (C6)	en Sulfide d Rhizos ce of Red	Odor (Coheres or luced Iron uction in	1) I Living Roots	Dry-Season W. Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Po	ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2)	
High W Saturat Water N Sedime Drift De Algal M Iron De Inundat Sparse	ion (A3) Marks (B1) Int Deposits (B2) Int Deposits (B3) Int Or Crust (B4) Int Deposits (B5) Int Or State on Aeria Int Vegetated Conca	ave Surface	· · · · · · · · · · · · · · · · · · ·	Hydrogo Oxidize (C3) Presend Recent (C6) Thin Mu	en Sulfide d Rhizosp ce of Red Iron Red uck Surfa or Well D	e Odor (Coheres or luced Iron uction in Coe (C7) ata (D9)	1) Living Roots (C4) Tilled Soils	Dry-Season W. Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Po	ater Table (C2) ws (C8) ble on Aerial Imagery (C9 essed Plants (D1) osition (D2)	
High W Saturat Water N Sedime Drift De Algal M Iron De Inundat Sparse	ion (A3) Marks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int posits (B5) Int on Visible on Aeria	ave Surface	· · · · · · · · · · · · · · · · · · ·	Hydrogo Oxidize (C3) Presend Recent (C6) Thin Mu	en Sulfide d Rhizosp ce of Red Iron Red uck Surfa or Well D	e Odor (Coheres or luced Iron uction in Coheres)	1) Living Roots (C4) Tilled Soils	Dry-Season W. Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Po	ater Table (C2) ws (C8) ble on Aerial Imagery (C9 essed Plants (D1) osition (D2)	
High W Saturat Water N Sedime Drift De Algal M Iron De Inundat Sparse Water-S	ion (A3) Marks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int posits (B5) Int on Visible on Aeria Ity Vegetated Conca Italined Leaves (B9	ave Surface	· · · · · · · · · · · · · · · · · · ·	Hydrogo Oxidize (C3) Presend Recent (C6) Thin Mu	en Sulfide d Rhizosp ce of Red Iron Red uck Surfa or Well D	e Odor (Coheres or luced Iron uction in Coe (C7) ata (D9)	1) Living Roots (C4) Tilled Soils	Dry-Season W. Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Po	ater Table (C2) ws (C8) ble on Aerial Imagery (C9 essed Plants (D1) osition (D2)	
High W Saturat Water N Sedime Drift De Algal M Iron De Inundat Sparse Water-S	ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria ly Vegetated Conca Stained Leaves (B9 ervations: ter present?	ave Surface 9) Yes	· · · · · · · · · · · · · · · · · · ·	Hydrogo Oxidize (C3) Presend Recent (C6) Thin Mu	en Sulfide d Rhizosi ce of Red Iron Red uck Surfa or Well D Explain in	e Odor (Coheres or luced Iron uction in Coheres or luced (C7) lata (D9) Remarks (inches):	1) Living Roots (C4) Tilled Soils	Dry-Season W Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Pr FAC-Neutral Tr	ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2) est (D5)	
High W Saturat Water N Sedime Drift De Algal M Iron De Inundat Sparse Water-S	ion (A3) Marks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int posits (B5) Int or Crust (B4) Int or Crust	ave Surface 9)	e (B8)	Hydrogo Oxidize (C3) Presend Recent (C6) Thin Mu	en Sulfided d Rhizosp ce of Red Iron Red uck Surfa or Well D Explain in Depth	e Odor (Conheres or luced Iron uction in Conheres (C7) lata (D9)	1) Living Roots (C4) Tilled Soils	Dry-Season W Crayfish Burrov Saturation Visil Stunted or Stre Geomorphic Po	ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) estion (D2) est (D5)	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site Former Refined Metals Corp	City/	County: Be	eech Grove/	Marion	Sampling Date	e: 4/23/12
Applicant/Owner: Advanced GeoServices		State:	IN		Sampling Point	t: WD-5
Investigator(s): Colin Keith, KERAMIDA		- Section	on, Townshi	o, Range:		27-15N-4E
Landform (hillslope, terrace, etc.): Woodla	ınd	Local re	elief (concav	e, convex	, none):	Slight Convex
Slope (%): 0 Lat: 39.716872		Long:	86.06447	78	Datum:	WGS84
Soil Map Unit Name Brookston silty clay loam	····		/WI	Classificat	tion:	Not Classified
Are climatic/hydrologic conditions of the site typical for t	this time o	of the year?	<u> </u>	f no, expla	ain in remarks)	· · · · · · · · · · · · · · · · · · ·
Are vegetation , soil , or hydrolog		significantly			Are "normal cir	rcumetances"
Are vegetation , soil , or hydrolog		naturally pro			710 Horrida Cil	present? Yes
SUMMARY OF FINDINGS	<i>"</i> —	, ,		(If need	led, explain any	answers in remarks.)
Hydrophytic vegetation present?				,		,
Hydric soil present? N		Is the sa	ampled area	a within a	wetland	N
Wetland hydrology present?			tional wetiar			
Remarks: (Explain alternative procedures here or in a s	enarate re	anort \				
Tremands. (Explain alternative procedures here of the a si	cparato 10	port.)				
VEGETATION LIGHT STATE OF THE S						<u>, , , , , , , , , , , , , , , , , , , </u>
VEGETATION Use scientific names of plants		Danataaa	I1!4	Domin	ance Test Worl	keheat
· · · · · · · · · · · · · · · · · · ·	Absolute % Cover	Dominan t Species	Indicator Staus			•
1 Carya ovata	50	Y Opecies	FACU		of Dominant Sp OBL, FACW, or	
2		<u> </u>	.,,,,,		Number of Dom	
3					cies Across all S	and the second s
4				Percent	of Dominant Sp	
5					OBL, FACW, or	
	50	= Total Cover				
Sapling/Shrub stratum (Plot size:)					ence Index Wo	rksheet
1 Lonicera morrowii		<u> </u>	NI		Cover of:	<u>.</u>
2				OBL sp		$-x^{1} = \frac{0}{2}$
3				FACW : FAC sp	·	$- \begin{array}{ccc} x & 2 & = & & 0 \\ x & 3 & = & & 60 \end{array}$
5				FACU s		x = 4 = 200
<u> </u>	0	Total Cover		UPL sp	·	$-x^{7} = \frac{200}{0}$
Herb stratum (Plot size:)				Column		(A) 260 (B)
1 Lonicera morrowii			NI		nce Index = B//	_` <i>`</i> ``
2 Parthenocissus quinquefolia	10	·	FAC			
3 Toxicodendron radicans subsp. negundo	10	Υ	FAC	Hydrop	hytic Vegetation	on Indicators:
4				Rap	oid test for hydro	ophytic vegetation
5					minance test is	
6				Pre	valence index is	s ≤3.0*
7						ations* (provide
8						Remarks or on a
9					arate sheet)	
10	20	Total Cover	 .		blematic nydrop olain)	ohytic vegetation*
Woody vine stratum (Plot size:)						nd wetland hydrology must be
1						turbed or problematic
2					drophytic	
	0 -	= Total Cover	_	-	etation sent?	Y
Remarks: (Include photo numbers here or on a separate	a sheet)					
Tromativo. (molado prioto flamboro fiore di una doparate	, 011001,					

							•			
SOIL								San	npling Point:	WD-5
	cription: (Descri	ibe to the o				e indicat	or or confirm	the absence	of indicators.)	
Depth	<u>Matrix</u>		·	dox Feat						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Rema	ırks
0-18	10 YR 3/3	100					SCL			
			 		1					
				ļ		ļ				
	44.00 P									
	Concentration, D	= Depletion	, RM = Reduc	ed Matrix	x, MS = N	/lasked S			ı: PL = Pore Linin	
•	oil Indicators:			2017					matic Hydric So	
	tisol (A1)				ed Matrix	(S4)			ox (A16) (LRR K ,	, L, R)
	tic Epipedon (A2)			ndy Redo				Surface (S7)		
	ck Histic (A3)				atrix (S6)			•	or Peat (S3) (LRI	
	drogen Sulfide (A				ky Miner				Masses (F12) (LR	
	atified Layers (A5)			ed Matri				k Surface (TF12)	
************	m Muck (A10)				atrix (F3)		Other	· (explain in r	emarks)	
	pleted Below Dark				Surface	` '				
	ck Dark Surface (ark Surfa				phytic vegetation	
	ndy Mucky Minera m Mucky Peat or		Re	dox Depi	ressions	(F8)	hydro		present, unless oroblematic	disturbed or
	Layer (if observ	ed):								
Type:							Hydric	soil present	? <u>N</u>	
Depth (inch	es):									
Remarks:						.l				;
111/000/	001									
HYDROL						·				
	ydrology Indicato									
	icators (minimum	of one is re	<u>equired; check</u>				<u>Se</u>		cators (minimum	of two required
	Water (A1)				: Fauna (E		_		Soil Cracks (B6)	
	ater Table (A2)				quatic Pla				Patterns (B10)	20)
Saturat	` ,					Odor (C	·		on Water Table (C Burrows (C8)	· ∠)
	Marks (B1) nt Deposits (B2)			(C3)	u milizos	oneres on	Living Roots		n Visible on Aerial	Imagery (CO)
	posits (B3)				ce of Red	luced Iron	(C4)		or Stressed Plants	
	at or Crust (B4)			_			Tilled Soils		hic Position (D2)	
	posits (B5)	•		(C6)		GOROTI III			tral Test (D5)	
	ion Visible on Aeria	al Imagery (B7)	 ` ′	uck Surfa	ce (C7)	-	, , , to 1480	1001 (00)	
	y Vegetated Conce				or Weil D	. ,				
	Stained Leaves (B9		. ,			Remarks	s)			
Field Obse	`				•					

Depth (inches):

Depth (inches):

Depth (inches):

Νo

No

No

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Yes

Surface water present?

(includes capillary fringe)

Water table present?

Saturation present?

Remarks:

Ν

Wetland

hydrology

present?

Project/Site Former Refined Metals Corp		City/C	ounty: B	eech Grove/	Marion	Sampling Dat	te: 4/23/12
Applicant/Owner: Advanced GeoServices			State:	- IN		Sampling Poir	nt: WD-6
Investigator(s): Colin Keith, KERAMIDA			Secti	on, Townshi	p, Range:	- :	27-15N-4E
Landform (hillslope, terrace, etc.):	Woodland		Local r	elief (concav	/e, conve	x, none):	Convex
Slope (%): 0 Lat: 3	9.71675		Long:	86.06458	31	Datum:	WGS84
Soil Map Unit Name Urban Land-Brookston C	omplex			/WI	Classifica	tion:	Not Classified
Are climatic/hydrologic conditions of the site t	ypical for this	time of	the year?	<u>Y</u> (I	lf no, expl	ain in remarks))
Are vegetation , soil ,	or hydrology		significantly	disturbed?		Are "normal ci	ircumstances"
Are vegetation , soil ,	or hydrology		naturally pr	oblematic?			present? Yes
SUMMARY OF FINDINGS					(If need	ded, explain any	y answers in remarks.)
Hydrophytic vegetation present? Y							
Hydric soil present?			Is the s	ampled are	a within a	a wetlan	N .
Wetland hydrology present?			f yes, op	tional wetlar	nd site ID:		
Remarks: (Explain alternative procedures her	e or in a sepa	rate rer	oort.)				
Tresmand: (Explain alternative procedures not	o o:	ii daab i o p	5011.,				
VEGETATION Use scientific names	of plants			•			
VEGETATION Ose scientific frames		olute	Dominan	Indicator	Domin:	ance Test Woi	rksheet
Tree Stratum (Plot size:			t Species	Staus		of Dominant Sp	
1	— ′		<u>'</u>			OBL, FACW, or	
2						l Number of Dor	
3						cies Across all S	,
4				-		of Dominant Sp	
5		0 =	Total Cove		llial are	OBE, FACTO, OI	r FAC: 75.00% (A/B)
Sapling/Shrub stratum (Plot size:	,—		10.0.000	1	Prevale	ence Index Wo	orksheet
1 Acer negundo		20	Υ	FACW		Cover of:	
2 Lonicera morrowii				NI	OBL sp	ecies 0	x 1 = 0
3					FACW	species 40	x 2 = 80
4					FAC sp		
5		 .	Total On		i .	species 0	$- \times 4 = 0$
Herb stratum (Plot size:	\ 	20 =	Total Cover	r	UPL sp Column		x = 0 (A) 110 (B)
	 /	20	V	FACW		ence Index = B/	
1 Hydrophyllum virginianum 2 Zizia aurea		<u>20 </u>	<u>Y</u>	FAC	Fievale	ence muex = b/	A = 2.20
3 Lonicera morrowii			<u>'</u>	- NI	Hydron	hytic Vegetat	ion Indicators:
4							rophytic vegetation
5	***************************************				X Dor	minance test is	>50%
6					XPre	valence index	is ≤3.0*
7							tations* (provide
8							Remarks or on a
9						parate sheet)	phytic vegetation*
10		30 =	Total Cover			plain)	phytic vegetation
Woody vine stratum (Plot size:)				<u> </u>	•	and wetland hydrology must be
1		5	Υ				sturbed or problematic
2						drophytic	•
		5 =	Total Cover	•		getation esent?	Υ
Demontor (Include abote much as been	a aanarst- :-	1004)			L		·
Remarks: (Include photo numbers here or on	a separate sr	ieet)					

C,	0	Á	I	
_	~	В	۲.	

Sampling Point:

WD-6

Profile Des	cription: (Descri	be to th	e depth needed	to docu	ment the	e indicat	or or confirm the at	sence of indicators.)
Depth	<u>Matrix</u>		Red	lox Feati	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-18	10 YR 4/6	100					SCL	
		***************************************				İ		
						ļ		
•								
						<u> </u>		
			· · · · · · · · · · · · · · · · · · ·					
			<u> </u>	ļ				
	Concentration, D :	= Depleti	on, RM = Reduce	ed Matrix	, MS = N	/lasked S		ocation: PL = Pore Lining, M = Matrix
Hydric Sc	il Indicators:						Indicators for I	Problematic Hydric Soils:
His	tisol (A1)		Sar	dy Gley	ed Matrix	(S4)	Coast Prair	ie Redox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	ndy Redo	x (S5)		Dark Surfac	ce (S7) (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm Muck	Peat or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	1)	Loa	my Mucl	ky Miner	al (F1)	Iron-Manga	nese Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matri	x (F2)	Very Shallo	w Dark Surface (TF12)
	m Muck (A10)				atrix (F3)			ain in remarks)
	oleted Below Dark	Surface			Surface		` '	•
	ck Dark Surface (ark Surfa		*Indicators o	f hydrophytic vegetation and weltand
	ndy Mucky Minera		•		essions	, ,		nust be present, unless disturbed or
	m Mucky Peat or			•			,	problematic
			,			· · · · · · · · · · · · · · · · · · ·		
	Layer (if observe	eu):					Madela autom	wa majirato.
Type:					-		Hydric soil p	resent? N
Depth (inch-	es):				-			
Remarks:			•					
l								
								·
HYDROL	OGY							
Wetland Hy	drology indicate	ors:		······				
	icators (minimum		required; check	all that a	(vlaai		Seconda	ry Indicators (minimum of two require
	Water (A1)	0.01.010	- roganious ortoon		Fauna (E	3131		rface Soil Cracks (B6)
	ater Table (A2)					nts (B14)		ainage Patterns (B10)
Saturati						Odor (C		y-Season Water Table (C2)
	Marks (B1)					•		ayfish Burrows (C8)
	nt Deposits (B2)			(C3)	a 1 1111200p	J. 10103 011		turation Visible on Aerial Imagery (C9)
	posits (B3)			_ ' '	e of Red	uced Iron		inted or Stressed Plants (D1)
	at or Crust (B4)		***************************************	-			` '	emorphic Position (D2)
_	posits (B5)			(C6)	ii ci i i i cui	action in		C-Neutral Test (D5)
	ion Visible on Aeria	al Imager	v (B7)	- ` ´	ick Surfa	ce (C7)		o reduct rest (DO)
	y Vegetated Conca				or Well D			
	Stained Leaves (B9					Remarks	:)	
Field Obse		',				. romana	-/	
	ter present?	Yes	No		Depth (inches):		Wetland
Water table	•	Yes	No No		_ '	inches):		hydrology
Saturation p	,	Yes Yes	No No			inches):		, ,,
	apillary fringe)	162			- pehrii (inicries).		present? N
	· · · · · · · · · · · · · · · · · · ·	APR	- manta-d	l a2-1		variant !	inamenticus) !!!!	h l n ı
Describe re	corded data (stre	am gaug	e, monitoring wel	ı, aerial ş	onotos, p	revious i	inspections), if availa	pie:
	•							
Domester		****						
Remarks:								
								•

Project/Site Former Refined Metals Corp	City/	County:	Beech Grove/	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State:	IN		- Sampling Point:	WD-7
Investigator(s): Colin Keith, KERAMIDA		Sec	tion, Townshi	p, Range:	27	-15N-4E
Landform (hillslope, terrace, etc.): Wood	land	 Local	relief (concav	ve, conve	k, none):	None
Slope (%): 0 Lat: 39.717581		Long:	86.06456	54	Datum:	WGS84
Soil Map Unit Name Urban Land-Crosby Complex			/WI	Classifica	tion: No	ot Classified
Are climatic/hydrologic conditions of the site typical fo	r this time c	of the year?	Y (I	If no, expl	ain in remarks)	
Are vegetation , soil , or hydrol	logy	significan	tly disturbed?		Are "normal circu	mstances"
Are vegetation , soil , or hydrol	ogy	naturally _l	problematic?		The morning ende	present? Yes
SUMMARY OF FINDINGS				(If need	led, explain any ar	nswers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		is the	sampled area	a within a	a wetlanı Y	
Wetland hydrology present?		f yes, o	optional wetlar	nd site ID:	Wetland Area	a 3
Remarks: (Explain alternative procedures here or in a	coporato re	nort \	·			
Themarks. (Explain alternative procedures here of in a	separate re	β ρυπ. <i>)</i>				•
VIOLET ALL ON THE STATE OF THE	1 -					
VEGETATION Use scientific names of plan				l Damin	ance Test Works	e a e i
Tree Stratum (Plot size:)	Absolute % Cover	Dominan t Species				
1 Fraxinus pennsylvanica	30	Y	FACW		of Dominant Speci OBL, FACW, or FA	
2					Number of Domina	
3					cies Across all Stra	
4				Percent	of Dominant Speci	es
5			4 *************************************	that are	OBL, FACW, or FA	.C: 100.00% (A/B)
	30	=Total Cov	er	<u> </u>		<u> </u>
Sapling/Shrub stratum (Plot size:)	1				ence Index Works	sheet
2 Acer negundo	25 .	Y	FACW	OBL sp	Cover of:	1 = 0
3 Lonicera morrowii			NI NI			2 = 120
4				FAC sp		3 = 0
5				FACU	species 0 x	4 = 0
	25	=Total Cov	er	UPL sp		5 = 0
Herb stratum (Plot size:)	ĺ			Column	totals 60 (A) <u>120</u> (B)
1 Fraxinus pennsylvanica	5	Y	FACW	Prevale	ence Index = B/A =	2.00
2						I
3		-			hytic Vegetation old test for hydropl	
5					minance test is >5	-
6					valence index is ≤	
7				— _{Moi}	rphogical adaptation	ons* (provide
8					porting data in Re	
9				sep	arate sheet)	
10			. 	1	blematic hydrophy	tic vegetation*
/DI	5	= Total Cov	er	— (ex	plain)	
Woody vine stratum (Plot size:)	ļ				ors of hydric soil and v present, unless disturt	vetland hydrology must be
2					drophytic	вес от рговленталс
-		= Total Cov	er	veg	getation	
				pre	sent? Y	<u> </u>
Remarks: (Include photo numbers here or on a separa	ate sheet)					

Sampling Point:

WD-7

Profile Desc	ription: (Descr	be to th	e depth needed	to docu	ment the	e indicat	or or confirm th	e absence of indicators.)	
Depth	Matrix			dox Feat			l		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Rema	arks
0-18	10 YR 3/2	95	10 YR 5/6	5	BM	М	SCL		
0 10	10 111 0/2	- 55	10 111 3/0	<u> </u>	I IIVI	141	OOL		
			·						
					1	ļ			
	The state of the s								
**************************************		<u> </u>				1			
					<u> </u>	-	<u> </u>		
							ļ	***************************************	
*T)	Davidati	L DM Dadoo	and the American		411-0)	**1	
	Concentration, D	= Debleti	on, RIVI = Reduce	ea watrix	(, MS = N	viasked S		**Location: PL = Pore Linin	
-	il Indicators:		_					or Problematic Hydric So	
	isol (A1)				ed Matrix	x (S4)	-	rairie Redox (A16) (LRR K	, L, R)
	tic Epipedon (A2)		Sar	ndy Redo	ox (S5)			ırface (S7) (LRR K, L)	
	ck Histic (A3)				ıtrix (S6)			ucky Peat or Peat (S3) (LR	
	lrogen Sulfide (A		Loa	ımy Mucl	ky Miner	al (F1)		nganese Masses (F12) (LF	
Stra	atified Layers (A5)	Loa	ımy Gley	ed Matri	x (F2)	Very Sh	allow Dark Surface (TF12)	
2 cr	n Muck (A10)		Dep	oleted Ma	atrix (F3)) .		explain in remarks)	
X Dep	leted Below Dark	s Surface	(A11) Red	dox Dark	Surface	(F6)		•	
	ck Dark Surface (ark Surfa		*indicato	s of hydrophytic vegetation	and weltand
	idy Mucky Minera				ressions			y must be present, unless	
	n Mucky Peat or					(/	11, 41, 010,	problematic	albiaroou or
			,			····		p. 02.0	
	Layer (if observ	ed):							
Type:					_		Hydric so	il present? Y	
Depth (inche	es):				_				
Remarks:						J			
UVDDOL	20V								
HYDROL									
	drology Indicate								
Primary Indi	<u>cators (minimum</u>	of one is	required; check	all that a	<u>(ylqqı</u>		<u>Seco</u>	ndary Indicators (minimum	of two required)
	Water (A1)				Fauna (E			Surface Soil Cracks (B6)	
High Wa	ater Table (A2)			True Aq	uatic Pla	nts (B14)		Drainage Patterns (B10)	
Saturati						e Odor (C		Dry-Season Water Table (C	(2)
Water N	farks (B1)			Oxidize	d Rhizos	oheres on	Living Roots	Crayfish Burrows (C8)	•
	nt Deposits (B2)			(C3)			*******	Saturation Visible on Aerial	Imagery (C9)
X Drift De	oosits (B3)	•		Presend	ce of Red	luced Iron	ı (C4)	Stunted or Stressed Plants	(D1)
Algal Ma	at or Crust (B4)			Recent	Iron Red	uction in ⁻	Tilled Soils	Geomorphic Position (D2)	
	osits (B5)			(C6)				FAC-Neutral Test (D5)	
	on Visible on Aeria			Thin Mu	ick Surfa	ce (C7)		-	
Sparsely	y Vegetated Conc	ave Surfa	.ce (B8)	Gauge	or Well D	ata (D9)			
	tained Leaves (B9			Other (E	Explain in	Remarks	∍)		
Field Obse				-					
Surface wat		Yes	No		Depth ((inches):		Wetland	
Water table		Yes	No			(inches):		hydrology	
Saturation p		Yes	No No			(inches):		present? Y	,
	pillary fringe)				F 7	/-			
		om galla	o monitoring wo	Looriale	nhotoc r	rovioue i	inspections), if av	oilabla:	
Describe re	corded data (Stre	ani yauy	e, monitoning wei	ii, aeriai į	pilotos, p	JI EVIOUS I	mspections), if av	allable.	
Remarks:									
nemains.									
1									

Project/Site Former Refined Metals Corp		City/County	: Bee	ech Grove/ľ	Marion	Sampling Date	e: 4/23/12
Applicant/Owner: Advanced GeoServices		Si	tate:	IN		- Sampling Poin	it: WD-8
Investigator(s): Colin Keith, KERAMIDA			Section	n, Township	, Range:	- :	27-15N-4E
Landform (hillslope, terrace, etc.):	Woodland	L	_ocal reli	ief (concav	e, conve	x, none):	Slight Concave
Siope (%): 0 Lat: 3	9.717161	Long	j:	86.06386	4	Datum:	WGS84
Soil Map Unit Name Urban Land-Crosby Con	nplex			AMI C	Classifica	tion:	Not Classified
Are climatic/hydrologic conditions of the site	typical for this	time of the ye	ear?	<u>Y</u> (II	f no, expl	ain in remarks)	
Are vegetation , soil ,	or hydrology	signif	ficantly d	disturbed?		Are "normal ci	ircumstances"
Are vegetation , soil ,	or hydrology	natur	ally prob	olematic?		,	present? Yes
SUMMARY OF FINDINGS					(If need	ded, explain any	answers in remarks.)
Hydrophytic vegetation present?	,						
Hydric soil present?	/	ls	the san	npled area	within a	a wetlan:	Υ
Wetland hydrology present?	/	fy	es, optic	onal wetlan	d site ID:	: Wetland A	Area 4
Remarks: (Explain alternative procedures he	ro or in a consi	rate report \					
Internative procedures he	ie oi iii a sepai	rate report./					
VEGETATION III							, , , , , , , , , , , , , , , , , , , ,
VEGETATION Use scientific names				1	Damin	ance Test Wor	la baat
Tree Stratum (Plot size:		olute Domi over t Spe		ndicator Staus			
1 Fraxinus pennsylvanica	<u></u> ′	5 Y		FACW		r of Dominant Sp OBL, FACW, or	
2		<u> </u>				Number of Don	 ··
3						cies Across all S	
4					Percent	t of Dominant Sp	pecies
5					that are	OBL, FACW, or	FAC: 100.00% (A/B)
	. — 4	5 = Total	Cover				
Sapling/Shrub stratum (Plot size:)			NII.		ence Index Wo	orksheet
1 Lonicera morrowii 2 Acer negundo		<u>.0 Y</u>	, 	NI FACW	OBL sp	Cover of: pecies 0	x 1 = 0
3 Acer negunoo				TACW		species 65	$- x 2 = \frac{0}{130}$
4					FAC sp	· —	-x3 = 0
5					FACU	species 0	x 4 = 0
		0 = Total	Cover		UPL sp	ecies 0	x 5 = 0
<u>Herb stratum</u> (Plot size:)				Column	totals 65	(A) <u>130</u> (B)
1					Prevale	ence Index = B/	A = 2.00
2							
3							on Indicators:
4					_	pia test for riyar minance test is	ophytic vegetation
6						valence index i	
7					— Mo	rnhogical adapt	tations* (provide
8							Remarks or on a
9					sep	parate sheet)	
10							phytic vegetation*
	<u> </u>	Total	Cover		— (ex	plain)	
Woody vine stratum (Plot size:)						nd wetland hydrology must be
2		· · · · · · · · · · · · · · · · · · ·				present, unless dis drophytic	sturbed or problematic
		Total	Cover			getation	
	`				pre	sent?	<u>Y</u>
Remarks: (Include photo numbers here or on	a separate sh	eet)					



1055 Andrew Drive, Suite A West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

September 12, 2011

2003-1046-00

Mr. Jonathan Adenuga United States Environmental Protection Agency, Region 5 Corrective Action Branch 77 West Jackson Boulevard Chicago, IL 60604-3590

RE:

Corrective Measures Implementation

Refined Metals Facility Beech Grove, Indiana IND 000 718 130

Dear Jonathan:

At the request of Refined Metals Corporation (RMC), I am drafting this letter to document your telephone conversation with Matthew Love regarding Corrective Measures Implementation at the RMC facility in Beech Grove, Indiana. As you discussed with Matt Love, we have reached a point in the calendar where we no longer believe that it is realistic to expect we can complete remediation and restoration activities before the onset of winter. At this time, we still have the following open issues that are preventing or delaying the start of construction:

- 1. We were required to complete an updated wetland delineation for the site. The delineation was completed in late July/early August and at this time we are awaiting completion of a Jurisdictional Determination by the Army Corps of Engineers to confirm that a small area of isolated wetlands identified in the moved lawn area near Arlington Avenue is not subject to regulation.
- 2. We are still awaiting access from the CSX Railroad for remediation of the drainage ditch within their right-of-way at the north end of the RMC property.
- 3. Final approval of the Drainage Permit from the City of Indianapolis is held up pending approval of an Easement by RMC to the City of Indianapolis.
- 4. RMC is awaiting final comments and approval from Citizens Gas for excavation and restoration activities to be completed on their property

Instead of starting construction activities in October 2011, shutting down for December through March with a disturbed site and then resuming construction in April 2012, we will be delaying the start of construction until mid-April 2012 with an eye towards completion by July/August 2012. We believe that delaying the start date will allow RMC to fully address the open issues cited above, and allow the site to remain undisturbed through the winter period, and allow work to proceed in more favorable weather conditions.

•		•	•



Mr. Jonathan Adenuga 2003-1046-00 September 12, 2011 Page 2 of 2

It is our understanding that you concur with this decision. If you have any questions or comments, please contact Paul Stratman at 610-840-9122 or Matthew Love at 610-921-4054.

Sincerely,

ADVANCED GEOSERVICES CORP.

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

Enclosures

cc: Ruth Jean

Matthew Love

•	•		**		•	
		·				
				ř.		



Refined Metals - Soil from Pipeline Excavation

LOVE, Matt (Reading Equipment Center)

To: Jonathan Adenuga, JEAN, RUTH

Cc: Paul Stratman

06/12/2012 10:49 AM

Jonathan and Ruth,

Per Jonathan's request this morning, I contacted the pipeline company that performed repairs in the drainage ditch in front of the Refined Metals facility and asked what happened to the soil they excavated. The pipeline company said the gas company took it and that's all they knew. The pipeline company said they'd pass my phone number on to the gas company and request that someone from the gas company contact me. I'll let you know what the gas company says when they get back to me.

Matt

This message (including any attachments) may contain protected information and is intended only for the individual(s) named. If you are not a named addressee you should not disseminate, distribute or copy this e-mail. If you have received this e-mail in error, please notify sender by e-mail and delete this e-mail.

•		·		
				•
•				
			·	
· .				
	•			
•				
		·		
·				
·				
	·			
		•		
		•		
	•			

1055 Andrew Drive, Suite A

West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

September 12, 2011

2003-1046-00

Mr. Jonathan Adenuga United States Environmental Protection Agency, Region 5 Corrective Action Branch 77 West Jackson Boulevard Chicago, IL 60604-3590

RE: Corrective Measures Implementation

Refined Metals Facility Beech Grove, Indiana IND 000 718 130

Dear Jonathan:

At the request of Refined Metals Corporation (RMC), I am drafting this letter to document your telephone conversation with Matthew Love regarding Corrective Measures Implementation at the RMC facility in Beech Grove, Indiana. As you discussed with Matt Love, we have reached a point in the calendar where we no longer believe that it is realistic to expect we can complete remediation and restoration activities before the onset of winter. At this time, we still have the following open issues that are preventing or delaying the start of construction:

- 1. We were required to complete an updated wetland delineation for the site. The delineation was completed in late July/early August and at this time we are awaiting completion of a Jurisdictional Determination by the Army Corps of Engineers to confirm that a small area of isolated wetlands identified in the mowed lawn area near Arlington Avenue is not subject to regulation.
- 2. We are still awaiting access from the CSX Railroad for remediation of the drainage ditch within their right-of-way at the north end of the RMC property.
- 3. Final approval of the Drainage Permit from the City of Indianapolis is held up pending approval of an Easement by RMC to the City of Indianapolis.
- 4. RMC is awaiting final comments and approval from Citizens Gas for excavation and restoration activities to be completed on their property

Instead of starting construction activities in October 2011, shutting down for December through March with a disturbed site and then resuming construction in April 2012, we will be delaying the start of construction until mid-April 2012 with an eye towards completion by July/August 2012. We believe that delaying the start date will allow RMC to fully address the open issues cited above, and allow the site to remain undisturbed through the winter period, and allow work to proceed in more favorable weather conditions.



Mr. Jonathan Adenuga 2003-1046-00 September 12, 2011 Page 2 of 2

It is our understanding that you concur with this decision. If you have any questions or comments, please contact Paul Stratman at 610-840-9122 or Matthew Love at 610-921-4054.

Sincerely,

ADVANCED GEOSERVICES CORP.

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

Enclosures

cc: Ruth Jean

Matthew Love



1055 Andrew Drive, Suite A West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

2003-1046-00

March 10, 2011

Mr. Jonathan Adenuga Corrective Action Branch Environmental Protection Agency, Region 5 77 West Jackson Boulevard Chicago, IL 60604-3590

RE: Response to EPA's Comments for CMS Report

Refined Metals Facility Beech Grove, Indiana IND 000 718 130

Dear Jonathan:

I am sending this letter to document our telephone conversation of earlier today regarding submission of the response to comments contained in your comment letter received on February 8, 2011. Pursuant to that conversation, Refined Metals Corporation is granted an 11 day extension for submission of the required response from March 10, 2011 to March 21, 2011.

If you have any questions, please contact Paul Stratman at 610-840-9122 or Matthew Love at 610-921-4054.

Sincerely,

ADVANCED GEOSERVICES

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

cc:

Ruth Jean

Matthew Love

	*	· · · · · · · · · · · · · · · · · · ·



Hello Kerry, as I mentioned to you recently (7/11/11) that your name came up as the individual who provided comments to the drainage permit submitted for the Refined Metals Corp. located in beech Grove, IN. I also indicated to you that I was going to contact IDEM to inquire whether or not there are other state jurisdictional issues that they might be concerned with. The name of the individual at IDEM involved with storm water issues/permit is Randy Braun whom I have also contacted. If he has not already contacted you, his phone No. is (317) 234-3980. Randy apparently knows you. I would hope that both of you would review any amendments to the permit submitted for all relevant technical details, jurisdictional issues and more importantly, what impacts if any the storm water basin will have on the onsite containment cell that is going to be constructed at the facility. Please keep me posted

Thank you

Jonathan Adenuga

(312) 886-7954

		-			
•					
	•				
				,	

Randy Braun
(311) 234-3980

City of INSTANAPOLIS

Technical review

Kerry Daily (317)-266-8000

	 e e e e e e e e e e e e e e e e e e e		
 			e e e
			·
			-
		·	



Refined Metals Beech Grove Storm Water Management Basin and Drainage Permit from City

Paul Stratman to: Jonathan Adenuga
Cc: matt.love

07/08/2011 04:01 PM

History:

This message has been forwarded.

1 attachment



13-CROSS SECTION PLAN-CROSS SECTION.PDF

Dear Jonathon:

Advanced GeoServices Corp. is in the process of securing the Drainage Permit required by the City of Indianapolis for construction of the proposed Corrective Measures at the Refined Metals Corporation (RMC) facility in Beech Grove, Indiana. The original submission was made on June 7, 2011 and comments were received on June 21, 2011. The majority of the comments were relatively straight forward and can be addressed with no substantive changes to the approved Corrective Measures Design. However, there is one comment that we believe should be discussed with you before we proceed with changes to the design. The comment provided by Mr. Kerry Daily, the technical review for the City (317-266-8000 or kdaily@cbbel-in.com) is as follows

The design of the dry pond should include a low-flow channel with an underdrain to allow the pond to dry out between storm events.

The comment relates to either increasing bottom grading in the SWM Basin to 2% to minimize the potential for standing water or installing the under-drain to facilitate drainage of the basin. Ultimately, the requirement is intended to ensure that the SWM Basin will be sufficiently dry and can be maintained. We have evaluated the feasibility of increasing the bottom slope in the SWM Basin to 2% and the alternative of providing an under-drain. Unfortunately, because of the very flat slopes at the site we do not have enough vertical relief to allow us to provide the under-drain or 2% slopes while also maintaining sufficient storage capacity in the SWM Basin necessary for storm water detention.

Under the Stormwater Specifications Manual, we also have the option of utilizing a wet basin. A wet basin recognizes that in some situations an SWM Basin will be difficult to drain due to very flat slope or similar constraints and instead of attempting to create a dry bottom that will be likely wet or soggy the majority of the time, it is designed to retain water on a permanent basis while providing wetland plantings to enhance water quality. Based on our design evaluation we can create a wet basin design in the vicinity of the SWM Basin outlet structure while providing a dry basin configuration between the sediment forebay and the wet basin. As shown on the attached Figure, the wet basin will have a maximum standing water surface elevation of 837.25 and water surface area of approximately 4,300 sf (0.1 acres).

The maximum standing water surface elevation is equal to the invert elevation of the outlet structure from the approved Corrective Measures Design. This means that the vertical separation between the maximum standing water surface elevation and bottom of the

Containment Cell will be 4.25 ft (841.5 - 837.25), which is the same as the separation would have been during high groundwater periods under the approved design, and greater than the vertical separation in the sediment forebay of 3.0 ft (841.5 - 838.5 (forebay overflow pipe invert)). The elevation of the 225 ft long emergency spillway will be 840.25 which means water surface elevation in the basin cannot reach 841.5. The cross-section provided on the attached Figure depicts the relationship between the proposed wet pond and the bottom of the Containment Cell.

As explained above, utilization of the wet pond area in the SWM Basin will not change the relationship between water surface elevations in the SWM Basin and the bottom of waste elevation in the Containment Cell. Through this submission we respectfully request your approval of this deign modification for the proposed Corrective Measures at the Refined Metals Beech grove Site.

If you have any questions, please contact me at 610-840-9122. As discussed we are available to participate in a conference call on Modany to discuss further.

Thank you,

Have a good weekend.

Paul G. Stratman,
Senior Project Consultant

Advanced GeoServices

"Engineering for the Environment. Planning for People."

1055 Andrew Drive, Suite A

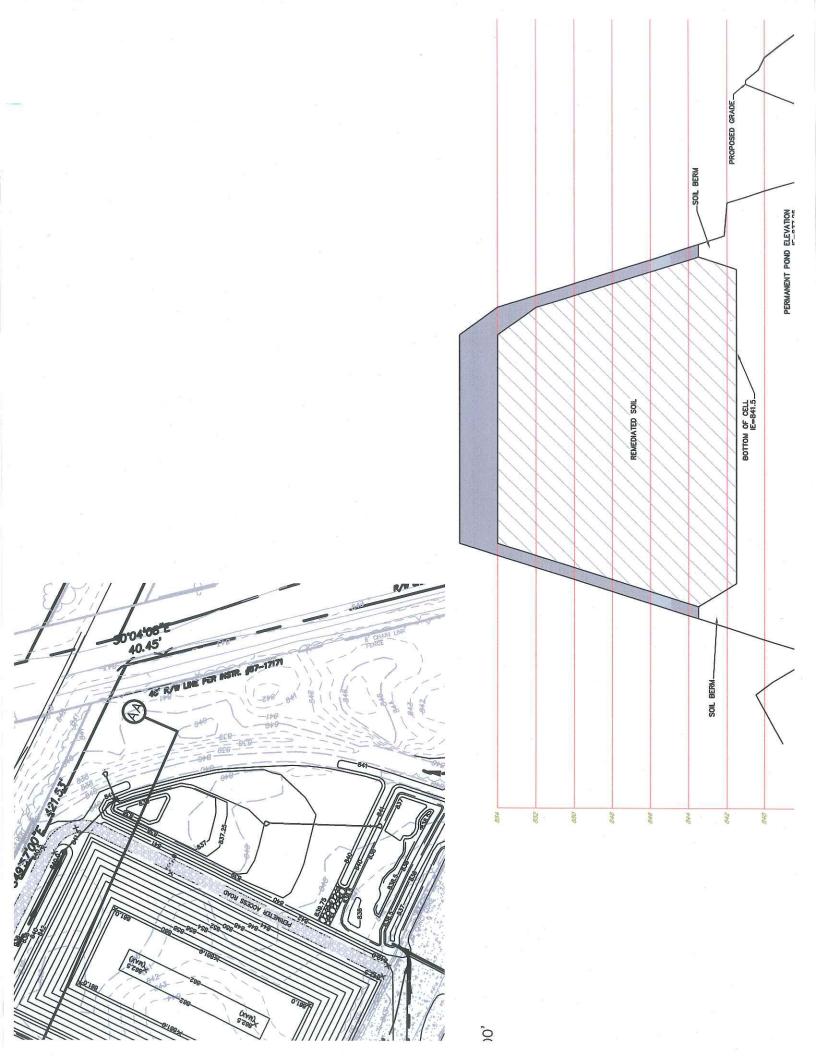
West Chester, PA 19380-4293

Direct 610.840.9122 Fax 610.840.9199

Email pgstratman@advancedgeoservices.com

Web Site http://www.advancedgeoservices.com

This message contains information that may be confidential or privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy, or disclose to anyone this message or any information contained in the message. If you have received this message in error, please advise the sender by reply e-mail and delete all copies of this message and its attachments.



ATTACHMENT

Evaluation of Response to General Comment (GC) 1a: The response partially addresses the comment. However, key elements of *EPA Requirements for Quality Assurance Project Plans*, dated March 2001 (EPA QA/R-5) have not been addressed in the QAPP. For example, the Quality Assurance Project Plan (QAPP) does not contain all standard operating procedures (SOPs) that will be used (e.g., for validation, analysis, etc.). Further, some of the information presented in the QAPP is inconsistent with the information presented in the SAP and other sections of the CM Design. The following are examples of deficiencies and inconsistencies noted in the QAPP:

- a. Section 4.2 of the QAPP, entitled Verification and Validation Methods, does not contain all of the qualifiers presented in SAP Section 10.2, Data Validation Protocol. Revise the QAPP and/or SAP to address this discrepancy.
- b. Section 4.2 of the QAPP cites one SOP for data validation, while Section 10.2 of the SAP references two procedures. Revise the QAPP and/or SAP to address this discrepancy.
- c. Section 4.2 of the QAPP indicates that the Treatment System sample delivery groups (SDGs) will undergo a lesser quality assurance (QA) review, but this has not been discussed in the SAP. It is also unclear what SDGs this refers to and why a lesser QA review was selected. Revise the QAPP to address this discrepancy.
- d. Table 2, Data Quality Objectives, in the QAPP lists a relative percent difference (RPD) of 35 percent for matrix spike soil samples, but the method specified limit included in Table 12-1 of Attachment A, the Laboratory Quality Assurance Manual, is 20 percent. Revise the QAPP to address this discrepancy.
- e. The QAPP does not discuss and summarize the secondary data that was used for the project; however, Appendix A, Confirmatory Sampling, indicates that previously collected data was used. Revise the QAPP to summarize previously collected data, including any limitations on this data.
- f. The QAPP does not indicate whether soil samples will be reported on a dry weight basis and if criteria objectives listed in Table 1, Sampling Parameters and Reporting Limits, are dry weight corrected. Revise the QAPP to indicate that both soil results and project criteria objectives will be reported based on dry weight.
- g. The QAPP includes extraneous information regarding analyses and validation of organic methods, but the SAP indicates only inorganic analyses will be performed. For example, Section 2.4 of the QAPP indicates tentatively identified compounds (TICs) may be measured, Section 4.2 of the QAPP discusses QA review of organic data, and data validation checklists are provided for semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Revise the QAPP to remove extraneous information.

Revise the QAPP to provide all SOPs referenced in the QAPP. Also, ensure the QAPP, SAP and CM Design present consistent information. Additional examples of missing EPA QA/R-5 elements are also included in the following comments.

Evaluation of Response to GC 1b: The response does not address the comment. The data quality objectives (DQOs) discussed in Section 1.4 of the QAPP do not provide sufficient detail when compared to EPA's DQO guidance document, *Guidance on Systematic Planning using the Data Quality Objectives Process* (QA/G-4), dated February 2006 and EPA QA/R-5, Section 3.2.7, A7 - Quality Objectives and Criteria. The DQO section should clearly define the problem and the environmental questions that will be answered for the current investigation, including the previous data that has been collected for the site. Project decision "If..., then..." statements should be included, linking data results with possible actions. The DQOs should also identify the type, quantity, and quality of data needed to answer the study questions. Although some of this information may be located in the CM Design (e.g., the if/then statements for confirmatory sampling and the specific cleanup criteria for backfill included in Appendix A), this information should be added to the QAPP and summarized in a table to make the QAPP a more useful field document. Revise the QAPP to contain detailed DQOs to ensure that the environmental problems are adequately addressed and informed decisions can be made in the field.

Evaluation of Response to GC 1c: The response does not address the comment. The response indicates that certain sections in the SAP contain the rationale for the design of the proposed soil and groundwater sampling. However, the referenced sections do not appear to contain sufficient information and instead reference other pieces of the CM Design. The following are several examples where additional information is necessary:

- a. The response indicates that Section 5.3 of the SAP contains the rationale for the stockpile sampling, but this section references the CM Design for the rationale and design. It is unclear where in the CM Design this information may be found (i.e., why collecting one composite sample of four aliquots per 250 cubic yards will sufficiently determine that metals concentrations are below cleanup criteria). Revise the QAPP to justify why this amount of sampling is sufficient to meet project goals.
- b. The response states that the rationale for the containment cell groundwater sampling is provided in Section 5.6 of the SAP, but this section references Section 5.5.1 of the CM Design Report and Sections 2.6 and 4.2 of the Operations and Maintenance Plan. However, neither of these sections indicates why the proposed number and location of wells is sufficient to detect a release from the containment cell. Additionally, it is unclear why quarterly sampling for two years followed by semi-annual sampling for two years and then annual sampling was selected for the monitoring frequency. Revise the QAPP to justify why the proposed sampling is sufficient to meet project goals.
- c. The design and rationale for the confirmatory sampling references Chapter 6 of the IDEM RISC Technical Guide (RISC Guide); however, additional detail is necessary to justify the sampling approach. Section 6.3 of the RISC Guide explains that random soil sampling for closure should consider the coefficient of variation (CV), and notes that additional samples or additional actions may be required if the CV is greater than 1.2. Additionally, Section 6.3.1 of the RISC Guide indicates that the upper confidence level (UCL) of the average concentration is used to determine closure. It is unclear if this statistical approach will be used for determining if additional excavation is

required or if closure is complete. Revise the QAPP to explain the rationale for the confirmatory sampling approach in greater detail.

Evaluation of Response to GC 1d: The response and information presented in Attachment B of the QAPP does not address the comment. The data validation checklists provided as Attachment B of the QAPP do not include the acceptance limits that will be used to validate data or how/when the associated qualifiers will be used when exceedances of control limits occur. Revise the QAPP to either indicate that the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review will be used as written (i.e., not modified for SW-846 method) or provide a checklist that includes details on how samples will be qualified (e.g., the control limits and associated qualifiers for exceedances that will be used during data validation).

Evaluation of Response to GC 1e: The response appears adequate; however this information should be added to Section 1.6, Documents and Records, of the QAPP. Additionally, Section 1.6 should include the monthly reports discussed in QAPP Section 3.2, Reports to Management. Revise Section 1.6 of the QAPP to include the information discussed in this response and the monthly reports discussed in Section 3.2.

Evaluation of Response to Specific Comment (SC) 3: The response partially addresses the comment. The response indicates that the long, narrow excavations ND1 and ND2 will be sampled along the centerline of the removed soil. However, it is unclear what will be done to minimize clustering of sampling locations for these narrow excavations. For example, the three sample locations for ND1 could be preferentially located at one end of the excavation. To ensure sample locations are sufficient, the proposed sample locations on the grids should be depicted. Revise the SAP to include the proposed locations of the confirmatory samples.

Evaluation of Response to SC 14: The response addresses the comment; however, the addition of dissolved oxygen (DO) and oxygen reduction potential (ORP) to well stabilization parameters in Section 2.2.4.3 of the QAPP should also be made to Section 6.6.3 of the SAP. Revise this section of the SAP to include the well stabilization parameters provided in the QAPP.



Engineering for the Environment, Planning for People.

1055 Andrew Drive, Suite A West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

May 25, 2010

2003-1046-18

Mr. Jonathan Adenuga U.S. Environmental Protection Agency 77 West Jackson Boulevard Chicago, IL 60604-3590

RE:

Response to Comments, Corrective Measures Design Refined Metals Corporation, Beech Grove, Indiana

IND 000 718 130

Dear Mr. Adenuga:

Advanced GeoServices, on behalf of Refined Metals Corporation (RMC), submits three (3) copies of the enclosed responses to comments on the Final Corrective Measures Design dated October 6, 2010, and revised on March 21, 2011 for the RMC Facility in Beech Grove, Indiana. The USEPA issued a comment letter dated May 3, 2011. This response has been prepared and is being issued in response to those comments.

For your convenience, your comment is provided in bold followed by our response.

Comment:

Evaluation of Response to General Comment (GC) 1a: The response does not address the comment. The response indicates that Appendix D, Sampling and Analysis Plan, of Attachment D, Construction Quality Assurance Plan (hereinafter referred to as SAP) provides the quality assurance project plan (QAPP) components. However, the SAP does not present all information required to be presented in a QAPP. Further, please note that the previous comments provided only examples of deficiencies when comparing to the SAP to EPA Requirements for Quality Assurance Project Plans, dated March 2001 (EPA QA/R-5), and were not intended to be an all inclusive comparison. A QAPP, which presents all of the information contained in the EPA Requirements for Quality Assurance Project Plans, dated March 2001 (EPA QA/R-5) should be prepared and submitted for review. Where applicable, the QAPP may reference the SAP for required information.

Additionally, the response indicates that Attachment A of the SAP contains laboratory standard operating procedures, method detection limits, and quality control acceptance criteria; however, Attachment A of the SAP has not been provided. Revise the SAP to provide Attachment A.

	•			
•				
		*		
			•	
		•		
				•



Mr. Jonathan Adenuga 2003-1046-18 June 2, 2011 Page 2 of 5

Response:

A new QAPP has been prepared and the laboratory Quality Assurance Manual has

been provided as Attachment A of the QAPP.

Comment:

Evaluation of Response to GC 1b: The response does not address the comment. The response indicates that data quality objectives (DQOs) were provided in Table 2 of the SAP; however, the DQOs listed in Table 2 do not provide the level of information necessary in a QAPP. Revise the SAP to present detailed DQOs, consistent with EPA's Guidance on Systematic

Planning Using the Data Quality Objective Process (EPA QA/G-4).

Response:

DQOs are presented in Section 1.4 of the QAPP.

Comment:

Evaluation of Response to GC 1c: The response partially addresses the comment. The referenced sections provide the sampling design. However, the rationale for why the sampling design is sufficient to meet study goals is not provided. Revise the SAP to provide a rationale for all sampling which discusses why the proposed sample numbers, types, locations and analyses

are sufficient to meet study goals.

Response:

Section 5.1 of the SAP has been revised to provide the Rationale for confirmatory sampling. Appendix A "Confirmatory Sampling" of the CQAP already discusses the basis for limiting sample analysis to only lead outside the HWMUs and including antimony, arsenic, cadmium and selenium, in addition to lead, within the HWMUs. Rationale for stockpile sampling have been added to Section 5.3 of the SAP. Rational regarding groundwater sampling for the Containment cell groundwater wells has been added to Section 5.6 of the SAP. Rationale regarding the location of groundwater samples to be collected for MNA groundwater monitoring has been added to Section 5.7 of the SAP. Additional rationale regarding the sufficiency of MNA groundwater monitoring to meet study goals is provided in the MNA work plan which is referenced in Section 5.7 of the SAP.

Comment:

Evaluation of Response to GC 1d: The response partially addresses the comment. The response indicates that Attachment B of the SAP contains a typical data validation checklist; however, Attachment B of the SAP has not been provided. Revise the SAP to provide data validation checklists for all proposed analyses.

Response:

Data validation checklists has been provided as Attachment B in the QAPP.

Comment:

Evaluation of Response to GC 1e: The response partially addresses the comment. Although it is noted that the information included in data validation reports (DVRs) has been provided, it is unclear what will be

~ .



Mr. Jonathan Adenuga 2003-1046-18 June 2, 2011 Page 3 of 5

included in the project reports (e.g., field logs, laboratory data packages, DVRs, etc.). Further, the data reduction discussion does not indicate how analytical data will be incorporated into the final report. Revise the SAP to indicate what will be included in the project reports, and to provide a data reduction discussion which indicates how the analytical data will be incorporated into the final report.

Response:

Two types of project reports will be generated from the sampling activities covered by the SAP and QAPP. As previously described in Section 6.0 of the CQAP, confirmatory sampling performed as part of the remediation will be presented in the Final Certification Report and will include figures presenting the sample locations and tables presenting the corresponding results. The accompanying narrative will discuss where sample results required additional remediation and describe vertical and horizontal limits of the additional removal activities. The Final Certification Report will include electronic copies of the Data Validation Reports, XRF correlation information, and laboratory reports. Copies of the field logs will not be included in the Final Certification Report, but they are maintained as part of the project file if they are required for future reference.

As described in Section 6.0 of the MNA Work Plan, the Annual Groundwater report will include quarterly groundwater contour maps, additive results tables, groundwater purge sheets and statistical analysis. Electronic copies of the Data Validation Reports and laboratory reports will also be provided. Copies of the field logs will not be included in the Final Certification Report, but they are maintained as part of the project file if they are required for future reference.

Comment:

Evaluation of Response to SC 3 & Comment 7: The response to this comment is partially adequate; however, Sheet 8 does not appear to list the amount of confirmatory samples to be collected after excavation. Additionally, it is unclear how the 10-foot by 10-foot grid will be applied to oddly shaped areas (i.e., ND1 and ND2) and excavation areas greater than the grid area. Revise Sheet 8 to include the number of samples, and clarify how the grid sampling approach will be applied to each excavation area.

Response:

The Table of Sheet No. 8 of the design has been revised to show number of samples required within each excavation area. The grid is applied as an overlay that beginning ½ the grid width (in this project 5 feet) from reference sidewalls selected by the Technician at the time of sampling. Typically the reference sidewalls will be perpendicular sidewalls that are readily defined based on excavation configuration and physical features. For the oddly shaped excavations the Technician will attempt to get the maximum number of grid nodes in the

•		•	



Mr. Jonathan Adenuga 2003-1046-18 June 2, 2011 Page 4 of 5

bottom of the excavation. For an excavation such as ND1 or ND2 the Technician will treat the grid as being a single baseline along the centerline of the excavation. The above language has been added to Section 5.1 of the SAP.

Comment:

Evaluation of Response to SC5 and 9: The response partially addresses the comment. The response indicates that Attachment C of the SAP contains manufacturer instructions for a Niton XRF unit; however, Attachment C of the SAP has not been provided. Revise the SAP to provide Attachment C.

Response:

The Niton manufacturer's instructions have been included in the QAPP.

Comment:

Evaluation of Response to SC11: The response partially addresses the comment. The text and tables indicate that zip lock baggies will be used for soil samples. However, Section 7.3 of the SAP indicates that samples will be placed on ice. Zip lock baggies may not be sufficient since the baggies may end up sitting in water from melted ice. The baggies can allow water infiltration over time which could result in cross contamination. Revise the SAP to ensure the potential for cross contamination will be eliminated.

Response:

Section 7.3 of the SAP has been revised to clarify that ice is only required when shipping groundwater samples. In addition Section 7.3 has been revised to state that if soil samples in baggies are shipped with samples requiring ice, then the soil samples in baggies shall be double bagged to prevent infiltration of ice water into the soil sample.

Comment:

Evaluation of Response to SC12: The response partially addresses the comment. Minimum sample volumes have been added to Table 3. However, the minimum sample size for many most soils is between 5-10 grams. To ensure that the laboratory has sufficient material to both properly subsample the soils, and re-prepare the soils if QC problems are encountered, it is recommended that at least 50 grams be collected. Revise the SAP to ensure that 50 grams will be collected for all analyses.

Response:

Language specifying a minimum mass of 50 grams has been added to Section 6.1, 6.2 and 6.3 of the SAP.

Comment:

Evaluation of Response to SC14: The response addresses the comment; however, further clarification is necessary.

• Section 6.6.2 of the SAP indicates that calibration of field instruments for groundwater monitoring activities will be conducted in accordance with manufacturer instructions, but these instructions have not been

•	•	-	•	*	·	
						ě

.



Mr. Jonathan Adenuga 2003-1046-18 June 2, 2011 Page 5 of 5

provided. Revise the SAP to provide the manufacturer instructions for all field instruments.

• Section 6.6.3 of the SAP indicates that well stabilization will be reached after conductivity, temperature, pH, and turbidity have reached certain criteria, but dissolved oxygen (DO) and oxygen reduction potential (ORP) have not been discussed. Revise the SAP to indicate the stabilization criteria that will be used for DO and ORP.

Response:

The manufacturer's instructions for the LaMotte turbidimeter and YSI flow through cell have been included in the QAPP. DO and ORP have been included as part of the well stabilization criteria in the QAPP. These are the manufacturers we currently utilize, however; the reviewer must recognize that actual equipment utilized is subject to change. When/if equipment changes are anticipated, the EPA will be notified of such proposed changes and information for the new equipment submitted.

We believe this adequately responds to the comments contained in your May 3, 2011 letter. If you have any questions, please call me at 610-840-9122.

Sincerely,

ADVANCED GEOSERVICES CORP.

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

Enclosures

cc: Matthew Love

Ruth Jean

			·		*.	
•						
			•			
						•
		•				



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 77 WEST JACKSON BOULEVARD CHICAGO, IL 60604-3590

5/3/2011

REPLY TO THE ATTENTION OF:

Matthew A. Love Manager-Regulatory Affairs Exide Corporation 3000 Montrose Avenue Reading, PA 19605

> Pre-Final Corrective Measures Design Work Plan Refined Metals Corporation IND 000 718 130

Dear Mr. Love:

The United States Environmental Protection Agency (U.S. EPA) has completed the review of the Response to Comments, dated March 21, 2011, for the Final Corrective Measure Design (Final CM Design) for the Refined Metals Corporation (RMC) facility located in Beech Grove, Indiana.

On January 4, 2011, EPA provided you with a conditional approval with the hope that RMC would be able to address all of EPA's comments. Based on our review, some of the EPA's comments have not been properly addressed. However, our desire is to see that the implementation of the proposed work in the CMI work plan begin as soon as possible. In that spirit we will provide you with another conditional approval. The enclosed attachment describes certain deficiencies noted in your March 2011 response. EPA is not opposed to RMC commencing work at the facility as long as the attached EPA comments are addressed within 14 days of receipt of this letter. The revised texts should be submitted within 14 days of receipt of this letter. If you have any questions, I can be reached at (312) 886-7954.

Sincerely,

Jonathan Adenug

Corrective Action Section

Enforcement Compliance Assurance Branch

cc: Bradley Martin, Techlaw Inc.,

cc: Ruth Jean, IDEM

•			**
			•
,			
		·	
		•	

SAMPLING AND ANALYSIS PLAN AND MONITORED NATURAL ATTENUATION WORK PLAN

Evaluation of Response to General Comment (GC) 1a: The response does not address the comment. The response indicates that Appendix D, Sampling and Analysis Plan, of Attachment D, Construction Quality Assurance Plan (hereinafter referred to as SAP) provides the quality assurance project plan (QAPP) components. However, the SAP does not present all information required to be presented in a QAPP. Further, please note that the previous comments provided only examples of deficiencies when comparing the SAP to EPA Requirements for Quality Assurance Project Plans, dated March 2001 (EPA QA/R-5), and were not intended to be an all inclusive comparison. A QAPP, which presents all of the information contained in the EPA Requirements for Quality Assurance Project Plans, dated March 2001 (EPA QA/R-5) should be prepared and submitted for review. Where applicable, the QAPP may reference the SAP for required information.

Additionally, the response indicates that Attachment A of the SAP contains laboratory standard operating procedures, method detection limits, and quality control acceptance criteria; however, Attachment A of the SAP has not been provided. Revise the SAP to provide Attachment A.

Evaluation of Response to GC 1b: The response does not address the comment. The response indicates that data quality objectives (DQOs) were provided in Table 2 of the SAP; however, the DQOs listed in Table 2 do not provide the level of information necessary in a QAPP. Revise the SAP to present detailed DQOs, consistent with EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4).

Evaluation of Response to GC 1c: The response partially addresses the comment. The referenced sections provide the sampling design. However, the rationale for why the sampling design is sufficient to meet study goals is not provided. Revise the SAP to provide a rationale for all sampling which discusses why the proposed sample numbers, types, locations and analyses are sufficient to meet study goals.

Evaluation of Response to GC 1d: The response partially addresses the comment. The response indicates that Attachment B of the SAP contains a typical data validation checklist; however, Attachment B of the SAP has not been provided. Revise the SAP to provide data validation checklists for all proposed analyses.

Evaluation of Response to GC 1e: The response partially addresses the comment. Although it is noted that the information included in data validation reports (DVRs) has been provided, it is unclear what will be included in the project reports (e.g., field logs, laboratory data packages, DVRs, etc.). Further, the data reduction discussion does not indicate how analytical data will be incorporated into the final report. Revise the SAP to indicate what will be included in the project reports, and to provide a data reduction discussion which indicates how the analytical data will be incorporated into the final report.

		·			
			i		

Evaluation of Response to SC 3 & Comment 7: The response to this comment is partially adequate; however, Sheet 8 does not appear to list the amount of confirmatory samples to be collected after excavation. Additionally, it is unclear how the 10-foot by 10-foot grid will be applied to oddly shaped areas (i.e., ND1 and ND2) and excavation areas greater than the grid area. Revise Sheet 8 to include the number of samples, and clarify how the grid sampling approach will be applied to each excavation area.

Evaluation of Response to SC 5 and 9: The response partially addresses the comment. The response indicates that Attachment C of the SAP contains manufacturer instructions for a Niton XRF unit; however, Attachment C of the SAP has not been provided. Revise the SAP to provide Attachment C.

Evaluation of Response to SC 11: The response partially addresses the comment. The text and tables indicate that zip lock baggies will be used for soil samples. However, Section 7.3 of the SAP indicates that samples will be placed on ice. Zip lock baggies may not be sufficient since the baggies may end up sitting in water from melted ice. The baggies can allow water infiltration over time which could result in cross contamination. Revise the SAP to ensure the potential for cross contamination is eliminated.

Evaluation of Response to SC 12: The response partially addresses the comment. Minimum sample volumes have been added to Table 3. However, the minimum sample size for many most soils is between 5-10 grams. To ensure that the laboratory has sufficient material to both properly subsample the soils, and re-prepare the soils if QC problems are encountered, it is recommended that at least 50 grams be collected. Revise the SAP to ensure that 50 grams will be collected for all analyses.

Evaluation of Response to SC 14: The response addresses the comment; however, further clarification is necessary.

- Section 6.6.2 of the SAP indicates that calibration of field instruments for groundwater monitoring activities will be conducted in accordance with the manufacturer instructions, but these instructions have not been provided. Revise the SAP to provide the manufacturer instructions for all field instruments.
- Section 6.6.3 of the SAP indicates that well stabilization will be reached after conductivity, temperature, pH, and turbidity have reached certain criteria, but dissolved oxygen (DO) and oxygen reduction potential (ORP) have not been discussed. Revise the SAP to indicate the stabilization criteria that will be used for DO and ORP.

*.	•	. .		•	5			~
								•
		•						
			,					
								•
•								:
					•			
							-	
÷								

Adenuga, Jonathan

From:

Paul Stratman [pstratman@advancedgeoservices.com]

Sent:

Tuesday, March 05, 2013 3:10 PM

To:

Adenuga, Jonathan

Cc:

matt.love@exide.com; Jennifer DiJoseph

Subject:

Beech Grove Permiting

Jonathon,

At the request of Matt Love I have prepared the following summary of permitting process/issues for the Refined Metals Site in Beech Grove Indiana.

- The previously approved Corrective Measures Design (CMD) included the filling/disturbance of all of the 0.49 acres of federally regulated wetlands west of the railroad spur and remediation of approximately 1,500 lineal feet of drainage ditch (approx. 0.14 acres) (this includes the ditch along the railroad spur and railroad tracks). In addition, approximately 0.1 acres of State Isolated Wetlands are proposed to be disturbed by remediation and restoration. Total disturbance = 0.73 acres.
- The revised design currently in for your consideration shows the filling/disturbance of 0.09 acres of federally regulated wetlands west of the railroad spur and remediation and restoration of approximately 1,500 lineal feet of drainage ditch (approx. 0.14 acres). In addition, approximately 0.1 acres of State Isolated Wetlands will be disturbed by remediation and restoration. Total disturbance = 0.33 acres.
- We are required to obtain the following permits for wetlands and water quality:
 - Site Specific Individual Section 401 Water Quality Certification (WQC) from IDEM (because the cumulative impacted area is >0.10 acres);
 - Nationwide Permit 38 (from ACOE) for Section 404 discharge of dredged or fill material into Water of the United States; and
 - IDEM Isolated Wetlands General Permit for discharge of dredged or fill material into state isolated wetlands.
 - Remediation of the drainage ditches along the railroad tracks does not meet the ACOE exemption for Maintenance of Drainage Ditches under Section 404 of the Clean Water Act. But if we modify the restoration of the drainage ditch to eliminate the rip-rap channel lining and utilize a soft/natural restoration (such as vegetation with periodic check dams) then the work can be included as an element of the NP-38 permit.
- Issuance of the Section 401 and Section 404 permits require that any activities involving the disturbance or filling of wetlands <u>first be subject to avoidance and minimization</u> to the maximum extent practicable. NP-38 and WQC must include a narrative discussion regarding how the design avoids and minimizes wetlands encroachment.
- In addition, the Hickory Trees in the wooded areas are also preferred habitat for the Indiana Bat, an endangered species, that must be avoided and that clearing can only be completed between the months of October 1 and March 31.

The anticipated activities and estimated time frame to proceed with permitting are as follows:

- Finalize CMD modifications based on USEPA comments. Est. 2 weeks.
- Prepare NP-38 and Individual WQC applications coincident with CMD finalization. Submit both applications simultaneously.
- Site Specific Individual Section 401 Water Quality Certification approx. 90 days for review.
- Section 404 Permits Nationwide Permit 38 60 to 90 days (concurrent with 401 review)
- IDEM Isolated Wetlands General Permit (specific to state isolated wetlands only) 30 days. Can be completed
 concurrent with WQC.
- City of Indy Drainage Permit revision Storm water design and management are dictated by the City of Indianapolis so the design modification relative to storm water will require review and re-issuance of the Storm Drainage permit by the City.

Based on the estimated timeframes shown above approximately 3 to 4months will be required to complete the Section 401 and 404 permitting.

I am currently in contact with the ACOE and USF&W regarding the limitation on clearing and hope we can get approval to clear the Hickory and White Oak trees in the next 3 weeks (before March 31), otherwise we must wait until October or at least have a Bat Specialist observe the site for Indaina Bats.

Please let me know if you have any questions.

Paul

Paul G. Stratman,

Senior Project Consultant

Advanced GeoServices

"Engineering for the Environment. Planning for People."

1055 Andrew Drive, Suite A

West Chester, PA 19380-4293

Direct 610.840.9122 Fax 610.840.9199

Email pgstratman@advancedgeoservices.com

Web Site http://www.advancedgeoservices.com

This message contains information that may be confidential or privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy, or disclose to anyone this message or any information contained in the message. If you have received this message in error, please advise the sender by reply e-mail and delete all copies of this message and its attachments.

Adenuga, Jonathan

From:

Paul Stratman [pstratman@advancedgeoservices.com]

Sent:

Tuesday, March 05, 2013 4:15 PM

To:

Michael Litwin@FWS.gov

Cc: Subject: matt.love@exide.com; Adenuga, Jonathan RMC Beech Grove tree clearing questions

Attachments:

14908 Revised Wetland Delineation Report (1).pdf; 20130305171149999.pdf

Mike,

The Refined Metals Corporation (RMC) facility was the location of lead recycling operations from 1968 through 1995. RMC was involved in the reclamation of lead from used automotive and industrial batteries and other lead-bearing materials. The site ceased normal operations on December 31, 1995. During its operational life, the facility handled hazardous materials or hazardous wastes as regulated under the Resource Conservation and Recovery Act (RCRA). In 1998 RMC entered into a Consent Decree with the United States Environmental Protection Agency (USEPA) and the Indiana Department of Environmental Management (IDEM), Civil Action No. IP902077C. The Consent Decree requires the completion of multiple activities associated with closure of the former hazardous waste management units, site investigation, evaluation and selection of corrective measures and performing corrective action activities.

At this time, RMC has received final USEPA and IDEM approval for the proposed Corrective Measures Implementation Plan and is planning to start Corrective Action Activities in May or June 2013.

Wetlands mapping has identified shagbark hickory in portions of the area that will be the location of the proposed containment cell and will require the clearing of approximately 3.3 acres of trees. As mentioned on the phone, we are concerned about the possibility of being held up from starting construction in June if we are prohibited from clearing trees between April 1 and October 31. We are contemplating performing the tree clearing now (before March 31), but would prefer to wait until we are ready to move with the entire project. Your thoughts/input regarding whether or not we would be prohibited from clearing after march 31 is appreciated.

I have attached a copy of the wetlands report and a figure showing the proposed limit of clearing for your reference.

Thank you for your assistance.

Paul

Paul G. Stratman,

Senior Project Consultant

Advanced GeoServices

"Engineering for the Environment. Planning for People."

1055 Andrew Drive, Suite A

West Chester, PA 19380-4293

Direct 610.840.9122 Fax 610.840.9199

Email pgstratman@advancedgeoservices.com

Web Site http://www.advancedgeoservices.com

This message contains information that may be confidential or privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy, or disclose to anyone this message or any information contained in the message. If you have received this message in error, please advise the sender by reply e-mail and delete all copies of this message and its attachments.



Engineering for the Environment. Planning for People.

1055 Andrew Drive, Suite A West Chester, PA 19380-4293 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

July 5, 2012

2003-1046-18

VIA FEDERAL EXPRESS

Mr. Laban Lindley U.S. Army Corps of Engineers Indianapolis Field Office 9799 Billings Road Indianapolis, IN 46216

RE: Request for a Jurisdictional Determination

Former Refined Metals Facility 3700 South Arlington Avenue Beech Grove, Indiana

Corps ID No. LRL-2012-107 lcl

Dear Mr. Lindley:

Attached please find two hard copies and one electronic copy of the revised Wetlands Delineation Report prepared by Keramida Environmental, Inc. (dated July 3, 2012) for the above-referenced facility. This revised Wetlands Delineation Report includes soils information and photographs as requested. We believe this provides the additional information required for completion of the Jurisdictional Determination.

If you have any questions, please contact me at 601-840-9122. We appreciate your efforts to help expedite this process.

Sincerely,

ÁDVANCED GEOSERVIÇES CORP.

Paul G. Stratman, P.E., P.G. Senior Project Consultant

PGS:vm

Enclosures

cc: Matthew Love, Exide (one hard copy)



401 North College Avenue Indianapolis, Indiana 46202 (317) 685-6600 • Fax (317) 685-6610 1-800-508-8034

keramida@keramida.com • www.keramida.com

July 3, 2012

Mr. Paul Stratman Advanced GeoServices 1055 Andrew Drive West Chester, PA 19380

Re: Wetland Delineation Report

Former Refined Metals Property

3700 S. Arlington Avenue

Beech Grove, Marion County, Indiana

KERAMIDA Project No. 14908

Dear Mr. Stratman,

KERAMIDA Environmental, Inc. (KERAMIDA) is pleased to submit this report of findings for the wetland delineation at the above-referenced Site. The Site, comprising approximately 24 acres of land, is located at the former Refined Metals property, at 3700 S. Arlington Avenue, Beech Grove, Marion County, Indiana. The purpose of the delineation was to establish the boundaries of wetland areas that were identified at the Site in previous investigations. The delineations were conducted in two separate field events and focused on two separate areas of the Site. The delineation events are discussed further below. It should be noted that the wetland in Area 1 was fully delineated in July 2011 and previously reported to and approved by the U.S. Army Corps of Engineers (USACE). The discussion of Area 1 is included in this document for reference purposes and to provide a single complete report for submittal to USACE. The wetlands in Area 2 were delineated in April 2012.

METHODOLOGY AND FINDINGS

Area 1

KERAMIDA identified a wetland area during a previous wetland determination field survey, documented in a Wetland Determination Report dated June 27, 2011 (June 2011 Wetland Determination). The wetland identified during the wetland determination was in a wooded/grassy boundary area near the northeastern portion of the Site (refer to Figure 1). This location is hereinafter referred to as Area 1.

KERAMIDA conducted a Site visit on July 14, 2011 to collect data points from Area 1 to determine the boundaries of the wetland with respect to the Site. As observed at the time of the field work, the wetland in Area 1 exhibited hydric soil and hydrologic wetland indicators. The sampling area was slightly concave with water marks apparent on nearby vegetation, indicating that water had once stood in the area. However, very little active vegetation growth was observed within the wetland. As discussed in the June 2011 Wetland Determination, a review of aerial photographs and satellite imagery indicated that the area is inundated during part of the

year. This evidence suggested that hydrophytic vegetation would most likely grow in the area given the proper conditions and, therefore, the area is a wetland. Delineation of this wetland, given the absence of significant vegetation growth, was based primarily on the presence of hydric soil and hydrologic indicators

Sampling points were selected from the grassy lawn south of the wetland, from within the wetland itself, and from the wooded area bordering the northern portion of the wetland (refer to Figure 2a for sampling point locations). Each sampling point was analyzed for the presence of hydric soils, wetland hydrology and hydrophytic vegetation. The observations at each sampling point were recorded on Field Data Forms, which are enclosed herein.

Based on the visual characteristics of the wetland, and verified through the data collected from the sampling points, stakes and survey flags were placed around the boundaries of the wet prairie-type wetland (see Figure 3a). Measurements based off of the staked boundaries yielded a calculated area for the wetland of approximately 0.2 acre.

Area 2

During the USACE Jurisdictional Determination (JD) process, additional suspect wetlands were identified. The suspect wetlands were situated in a wooded area on the northern portion of the Site (refer to Figure 1). This location is hereinafter referred to as Area 2.

KERAMIDA conducted Site visits on April 23, 26, and 27, 2012 to collect data points from within Area 2 to determine the boundaries of the wetlands with respect to the Site. As observed at the time of the field work, Area 2 is a heavily wooded area characterized by varied topography, containing hummocks and small hills, as well as low-lying, partially inundated areas. A historic rail siding runs through Area 2, with ditches present on either side of the former rail siding. The wetlands identified during the USACE JD process are generally located adjacent to the ditches.

The low-lying, partially inundated portions of Area 2, generally located adjacent to the rail siding ditches, exhibited hydrophytic vegetation, hydric soil, and hydrologic wetland indicators, meaning that they would be classified as wetlands. The purpose of KERAMIDA's field activities was to delineate these wetlands within Area 2. Due to the generally homogeneous soil conditions and prevalence of several wetland indicator plants throughout Area 2, delineation of these wetlands was based primarily on the presence of hydrologic indicators and variations in surface topography.

Sampling points were selected from within Area 2 (refer to Figure 2b for sampling point locations). Each sampling point was analyzed for the presence of hydric soils, wetland hydrology and hydrophytic vegetation. The observations at each sampling point were recorded on Field Data Forms, which are enclosed herein.

Based on the visual characteristics of the wetlands observed in Area 2, and verified through the data collected from the sampling points, stakes and survey flags were placed around the boundaries of three floodplain forest-type wetlands (see Figure 3b). Measurements based off of the staked boundaries yielded a total calculated area for the three wetlands of approximately 0.51

acre. The individual wetland areas (two on the west side of the rail siding, and one located near the northeast corner of the Site) are estimated at: 0.33 acre, 0.16 acre, and 0.11 acre, respectively.

Representative photographs of the respective wetland areas are attached to this document. Also included is a USDA soils map of the overall property (Figure 5).

CONCLUSIONS

Area 1

The closest Water of the U.S. relative to Area 1 is Sloan Ditch, located approximately 1,100 feet southeast. No connection to this or any other Water of the U.S. was found during the delineation or map review. Refer to Figure 4 (topographic map) for the location of Sloan Ditch relative to Area 1. Delineation of the wetland indicated the area is approximately 0.2 acre in size, with no identified connection to a Water of the U.S. Because the wetland does not abut or adjoin a Water of the U.S., it would be considered an isolated wetland, likely classified as a Class I or Class II wetland, as defined in Indiana Code 13-11-2-25.8.

Area 2

The wetlands in Area 2 are located generally adjacent to the ditches that run alongside a former rail spur on the property. The ditches are connected to the non-navigable Water of the U.S. Beech Creek, which is a tributary of Lick Creek. Because of the connection to a Water of the U.S., the ditches, and therefore the adjacent wetland areas, fall under the jurisdiction of USACE. It is anticipated that USACE permitting requirements will apply if the wetlands are to be disturbed.

If you have any questions concerning this information, please contact Colin Keith at (317) 685-6617. Thank you for the opportunity to assist you with this project.

Sincerely,

KERAMIDA Environmental, Inc.

Cot his

Colin Keith

Project Scientist

Douglas/B. Zabonick, F.E.

President

Enclosures



<u>Legend</u> Approximate Site Boundary:

Image Source: IMAGIS, 2010 Aerial



Figure 1 Site Map Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by: CK
Approved by: CH
Date: 5/22/12
Scale: as noted

KEI Number: 14908





<u>Legend</u> Wetland Data Point: ⊗



Image Source: IMAGIS, 2010 Aerial



Figure 2a Sampling Point Location Map - Area 1 Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by:

Approved by:

5/22/12 Date:

Scale:

as noted KEI Number: 14908





Image Source: IMAGIS, 2010 Aerial



Figure 2b
Sampling Point Location Map - Area 2
Former Refined Metals Property
3700 South Arlington Avenue
Beech Grove, Indiana

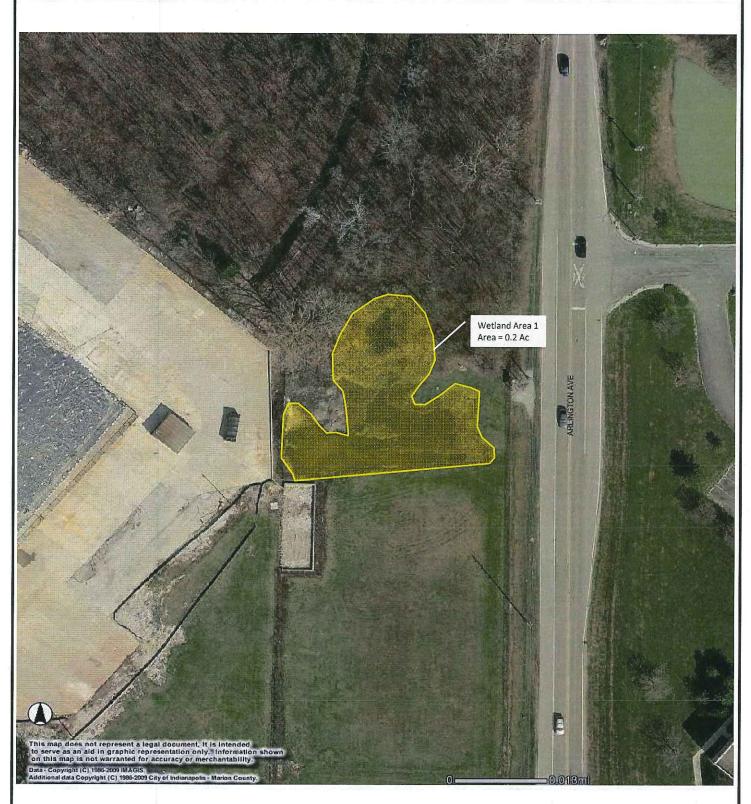
Prepared by: CK
Approved by: CH
Date: 5/22

 Date :
 5/22/12

 Scale :
 as noted

 KEI Number :
 14908





<u>Legend</u> Approximate Wetland Boundary:

Image Source: IMAGIS, 2010 Aerial



Figure 3a Wetland Boundary Map - Area 1 Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

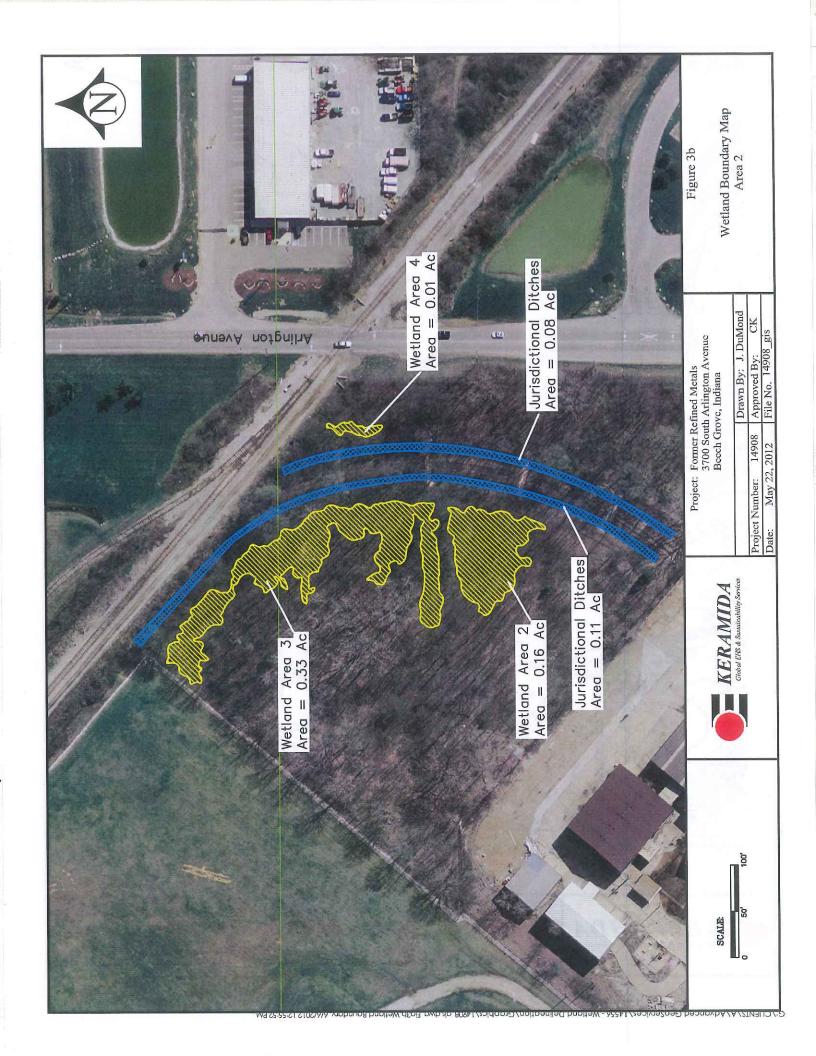
Prepared by: CK

Approved by: CH 5/22/12

Scale:

as noted KEI Number: 14908





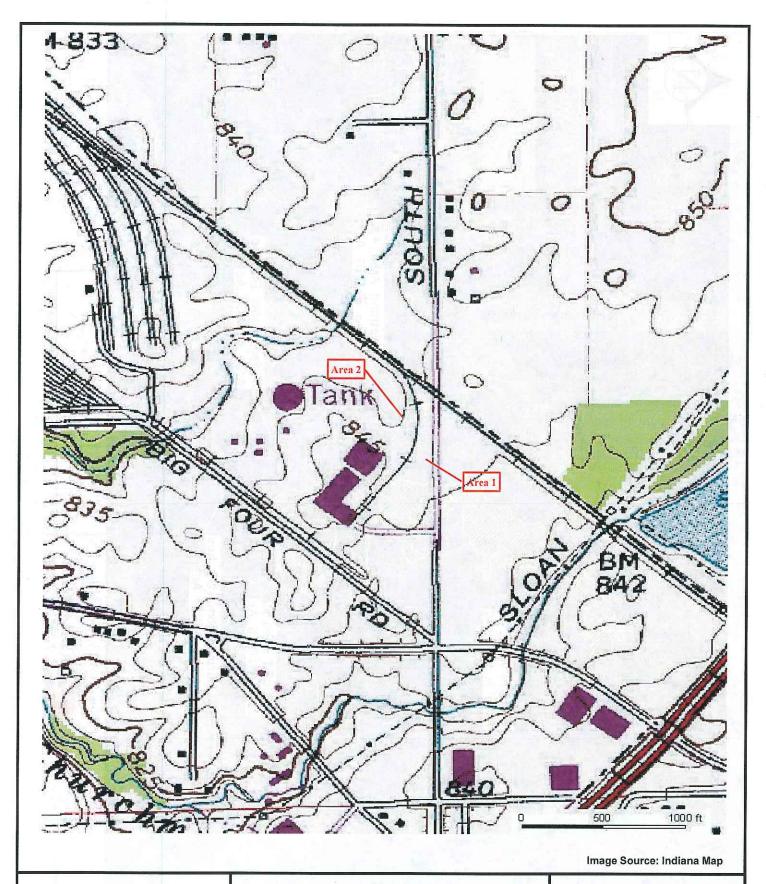




Figure 4 Topographic Map Former Refined Metals Property 3700 South Arlington Avenue Beech Grove, Indiana

Prepared by: CK СН

Approved by: 5/22/12 Date :

Scale: KEI Number: 14908

as noted

N

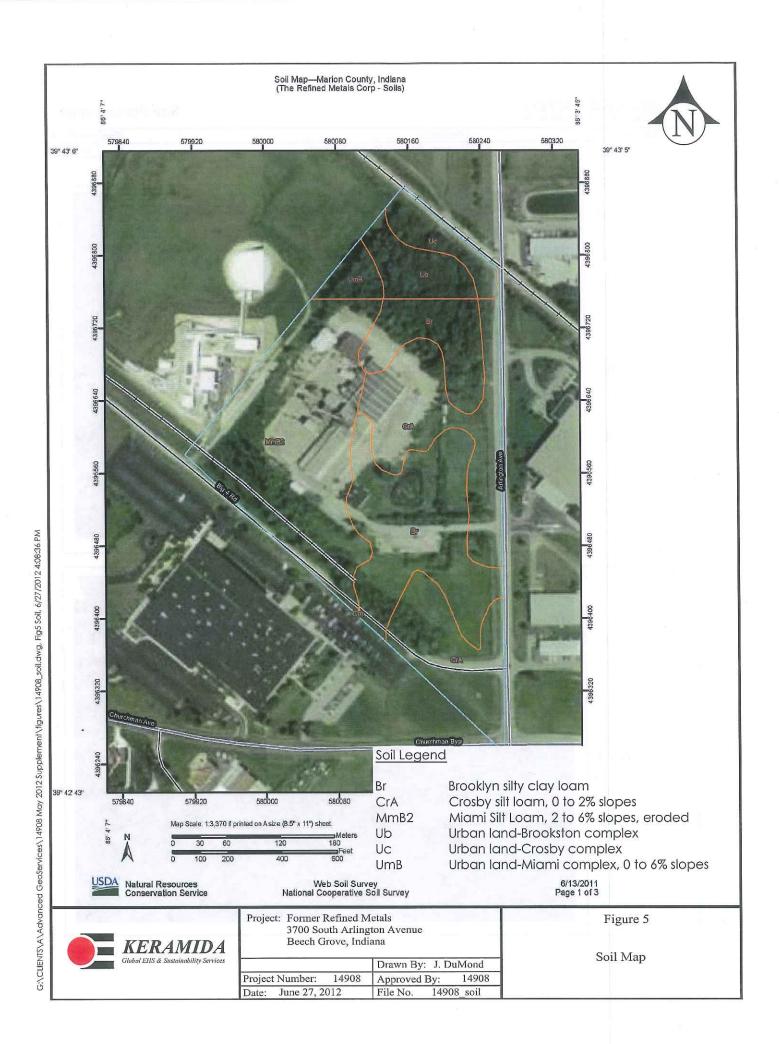




Photo Date:	Project:	Project #
	July 2, 2012 Former Refined Metals Property	14908

Photo #1



Wetland in Area 1.





Wetland 1 in Area 2.



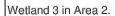
Photo Date:	Project:	Project #
	July 2, 2012 Former Refined Metals Property	14908

Photo #3



Wetland 2 in Area 2.







WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Former Refined Metals Corp	City/	County: E	Beech Grove	/Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State:	N		Sampling Point:	WD-1
Investigator(s): Colin Keith, KERAMIDA		Sect	ion, Townsh	ip, Range:	27-15	N-4E
Landform (hillslope, terrace, etc.): Woo	odland	Local	relief (conca	ve, convex	, none): Slig	ht Concave
Slope (%): 0 Lat: 39.7165	5	Long:	86.0643	25	Datum:	WGS84
Soil Map Unit Name Brookston silty clay loam			\WI	Classificat		Classified
Are climatic/hydrologic conditions of the site typical	or this time o	of the vear?			ain in remarks)	
	ology	' - '	y disturbed?		Are "normal circums	4=m==="
	ology		roblematic?			resent? Yes
SUMMARY OF FINDINGS		maiarany p	· Obioinatio	(If need	ء ed, explain any answ	
Hydrophytic vegetation present? Y				(11 11000	ou, explain any allow	rete in remaine.
Hydric soil present?		le tha s	sampled are	a within a	wetian N	
Wetland hydrology present?			otional wetla		***************************************	
			Juonai Wella	ila sile ib.		
Remarks: (Explain alternative procedures here or in	a separate re	eport.)				
VEGETATION Use scientific names of pla	nts.					
•	Absolute	Dominan	Indicator	Domina	nce Test Workshee	et
Tree Stratum (Plot size:)	% Cover	t Species	Staus	Number	of Dominant Species	
1 Fraxinus pennsylvanica	20	Y	FACW		DBL, FACW, or FAC:	3 (A)
2				Total	Number of Dominant	
3				Spec	ies Across all Strata:	3 (B)
4					of Dominant Species	
5		T-+-! 0		that are C	DBL, FACW, or FAC:	100.00% (A/B)
Sapling/Shrub stratum (Plot size:	\ <u>20</u>	≃ Total Cove	ır	Dravala	nce Index Workshe	-1
1 Acer negundo	. [/] 20	Υ	FACW	1	Cover of:	et
2 Lonicera morrowii			NI	OBL spe		= 0
3				FACW		
4				FAC spe	·	
5				FACU s	pecies 0 x 4 :	= 0
	20	= Total Cove	r	UPL spe	ecies 0 x 5	= 0
Herb stratum (Plot size:	.)			Column	totals 50 (A)	110 (B)
1 Lonicera morrowii			NI	Prevaler	nce Index = B/A =	2.20
2 Parthenocissus quinquefolia	10	Υ	FAC	L		
3				1	hytic Vegetation Inc	
4					id test for hydrophyti	- 1
6					ninance test is >50%	
7				l —	/alence index is ≤3.0	
8	· ——				phogical adaptations porting data in Rema	
9					oorling data in hema arate sheet)	IKS OF OIL &
10				l —	elematic hydrophytic	vecetation*
	10	Total Cove	r		lain)	- Cogotation
Woody vine stratum (Plot size:)			*Indicate	rs of hydric soil and wetla	and hydrology must be
1					resent, unless disturbed	
2					rophytic	
	0 =	= Total Cove	r	1 -	etation sent?	
				hies	ocitt I	
Remarks: (Include photo numbers here or on a sepa	rate sheet)	-				

SOIL	Sampling Point:	WD-1
UV:E	***************************************	***

Profile Descri	iption: (Descri									
Depth	Matrix			dox Feat						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		I	Remarks
0-18	10 YR 3/2	80	10 YR 5/6	20	RM	М	SCL			taledarallariahoretarana arang arang arang arang arang arang arang arang arang arang arang arang arang arang a
	10 /// 0/2				7					
				ļ	ļ					
				İ						
5-11-30 COSTA	enchamo		1111/1000000000000000000000000000000000	╁┈──			· · · · · · · · · · · · · · · · · · ·	****		
				 						
				ļ			~umasanacatanasanasanas			
*Type: C = Co	ncentration, D =	= Depleti	on, RM = Reduc	ed Matrix	, MS = N	/lasked S	and Grains.	**Location:	: PL = Pore	Lining, M = Matrix
Hydric Soil					***************************************		Indicators			
•	sol (A1)		Sas	ndv Glev	ed Matrix	(S4)			-	RR K, L, R)
	Epipedon (A2)			ndy Redo		. (+ .)			(LRR K, L)	
	Histic (A3)				atrix (S6)					,) (LRR K, L, R)
	ogen Sulfide (A4	1\			ky Miner	al (F1)				2) (LRR K, L, R)
	fied Layers (A5)				ed Matri				Surface (T	
	Muck (A10)	,			atrix (F3)			explain in r	•	1 12)
		Curtos			amx (F3) Surface			ολριαπι πι π	omaina)	
	eted Below Dark : Dark Surface (ark Surfa		*1	اا الم مر	nbutte · ·	totion onellt f
***************************************		,			ark Suria ressions					tation and weltand
	y Mucky Minera			aox nebi	ressions	(18)	nyarolo			nless disturbed or
5 cm	Mucky Peat or	Peat (S	3)					۴	problematic	
Manadalia I	ayer (if observ	ed):		***************************************						
Restrictive La						1	Usalain na		n \/	
							riyunc sc	oil present	? Y	
Туре:	3):		- Contraction				Hyuric sc	oil present	· <u> </u>	-
	s):				mana		nyunc sc	oil present	· · ·	
Type: Depth (inches	s):				nas		riyunc sc	oil present	? <u> </u>	-
Type: Depth (inches Remarks: HYDROLOG	GY				And I		nyunc sc	oil present	? <u> </u>	
Type: Depth (inches Remarks: HYDROLOG		ors:	And the second s		nhasi		nyunc sc	oil present	· _ Y	
Type: Depth (inches Remarks: HYDROLOG Wetland Hyd	GY Irology Indicato		s required; check	all that a	apply)			ondary India	cators (mini	imum of two require
Type: Depth (inches Remarks: HYDROLOG Wetland Hyd	GY Irology Indicate ators (minimum		s required; check		apply)	313)		ondary India		
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W	GY Irology Indicate ators (minimum		s required; check	Aquatio			Seco	ondary India Surface S	cators (mini	B6)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W	GY Irology Indicate ators (minimum Vater (A1) er Table (A2)		s required; check	Aquatic True Ad Hydrog	: Fauna (E quatic Pla en Sulfide	nts (B14) Odor (C	Seco	ondary Indio Surface S Drainage Dry-Seaso	cators (mini oil Cracks (l Patterns (Br on Water Ta	B6) 10) able (C2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3)		s required; check	Aquatic True Ad Hydrog	: Fauna (E quatic Pla en Sulfide	nts (B14) Odor (C	Seco	ondary Indio Surface S Drainage Dry-Seaso	cators (mini oil Cracks (l Patterns (B	B6) 10) able (C2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3)		s required; check	Aquatic True Ad Hydrog	: Fauna (E quatic Pla en Sulfide	nts (B14) Odor (C	Seco	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturatior	cators (mini oil Cracks (l Patterns (B on Water Ta Burrows (C8 n Visible on	B6) 10) able (C2)) Aerial Imagery (C9)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2)		s required; check	Aquation True Act Hydrog Oxidize (C3)	: Fauna (E quatic Pla en Sulfide	nts (B14) e Odor (C oheres on	Second 1) Living Roots	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturatior Stunted o	cators (mini oil Cracks (l Patterns (Br on Water Ta Burrows (C8 n Visible on r Stressed F	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2)		s required; check	Aquation True Act Hydrog Oxidize (C3) Presen	: Fauna (E quatic Pia en Sulfide ed Rhizos ce of Rec	nts (B14) Odor (C cheres on luced Iron	Second 1) Living Roots	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturatior Stunted o	cators (mini oil Cracks (l Patterns (B on Water Ta Burrows (C8 n Visible on	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4)		s required; check	Aquation True Act Hydrog Oxidize (C3) Presen	: Fauna (E quatic Pia en Sulfide ed Rhizos ce of Rec	nts (B14) Odor (C cheres on luced Iron	Secondary 1) Living Roots	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (mini oil Cracks (l Patterns (Br on Water Ta Burrows (C8 n Visible on r Stressed F	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeric	<u>of one is</u> al Imagei	y (B7)	Aquation True Act Hydrog Oxidize (C3) Present Recent (C6) Thin Mi	EFauna (E quatic Pia en Sulfide ed Rhizos ce of Rec Iron Red uck Surfa	nts (B14) e Odor (Coheres on luced Iron uction in	Secondary 1) Living Roots	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (minioil Cracks (l Patterns (Bron Water Ta Burrows (C8 n Visible on r Stressed F hic Position	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5)	<u>of one is</u> al Imagei	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	Fauna (E quatic Pia en Sulfide d Rhizos ce of Rec Iron Red uck Surfa or Well D	ents (B14) codor (Cooheres on luced Iron uction in ce (C7)	Secondary 1) Living Roots (C4) Tilled Soils	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (minioil Cracks (l Patterns (Bron Water Ta Burrows (C8 n Visible on r Stressed F hic Position	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely N	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeric	of one is al Imager ave Surfa	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	EFauna (E quatic Pia en Sulfide ed Rhizos ce of Rec Iron Red uck Surfa	ents (B14) codor (Cooheres on luced Iron uction in ce (C7)	Secondary 1) Living Roots (C4) Tilled Soils	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (minioil Cracks (l Patterns (Bron Water Ta Burrows (C8 n Visible on r Stressed F hic Position	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely N	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeri Vegetated Concained Leaves (B5)	of one is al Imager ave Surfa	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	Fauna (E quatic Pia en Sulfide d Rhizos ce of Rec Iron Red uck Surfa or Well D	ents (B14) codor (Cooheres on luced Iron uction in ce (C7)	Secondary 1) Living Roots (C4) Tilled Soils	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (minioil Cracks (l Patterns (Bron Water Ta Burrows (C8 n Visible on r Stressed F hic Position	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydr Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely \ Water-Sta	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) orits (B3) or Crust (B4) orits (B5) n Visible on Aeri Vegetated Concained Leaves (B5) rations:	of one is al Imager ave Surfa	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	Fauna (Equatic Pla en Sulfide en Sulfide d Rhizosp ce of Rec Iron Red uck Surfa or Well D Explain in	ents (B14) codor (Cooheres on luced Iron uction in ce (C7)	Secondary 1) Living Roots (C4) Tilled Soils	ondary Indio Surface S Drainage Dry-Seaso Crayfish E Saturatior Stunted o	cators (mini oil Cracks (l Patterns (B: on Water Ta Burrows (C8 n Visible on r Stressed F hic Position tral Test (D5	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hyde Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present?	of one is al Imager ave Surfa 3)	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	Fauna (Equatic Pla en Sulfide en Sulfide d Rhizosp ce of Rec Iron Red uck Surfa or Well D Explain in	ints (B14) c Odor (Coheres on duced Iron uction in ceta (C7) cata (D9) c Remarks	Secondary 1) Living Roots (C4) Tilled Soils	ondary Indio Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (mini oil Cracks (l Patterns (B: on Water Ta Burrows (C8 n Visible on r Stressed F hic Position tral Test (D5	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hyde Primary Indica Surface W High Water Saturation Water Man Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ Surface water	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present?	al Imager ave Surfa 3)	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	E Fauna (Equatic Pla en Sulfide en Sulfide d Rhizosp ce of Rec Iron Red uck Surfa or Well D Explain in	nts (B14) c Odor (Coheres on Juced Iron uction in Tea (C7) rata (D9) c Remarks (inches):	Secondary 1) Living Roots (C4) Tilled Soils	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (mini oil Cracks (l Patterns (B: on Water Ta Burrows (C8 n Visible on r Stressed F hic Position tral Test (D5	B6) 10) able (C2)) Aerial Imagery (C9) Plants (D1) (D2)
Type: Depth (inches Remarks: HYDROLOG Wetland Hyde Primary Indica Surface W High Water Saturation Water Man Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ Surface water Water table p	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent?	al Imager ave Surfa 3) Yes Yes	y (B7) ace (B8) No	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mi Gauge	E Fauna (Equatic Pla en Sulfide en Sulfide d Rhizosp ce of Rec Iron Red uck Surfa or Well D Explain in	nts (B14) e Odor (C cheres on luced Iror uction in ce (C7) rata (D9) i Remarks (inches): (inches):	Secondary 1) Living Roots (C4) Tilled Soils	ondary India Surface S Drainage Dry-Seasa Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ Surface water Water table p Saturation pre (includes cap	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) or Crust (B4) or Crust (B4) or Sits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent? esent?	al Imagel ave Surfa 3) Yes Yes Yes	ry (B7) ace (B8) No No	Aquatic True Ac Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge Other (E Fauna (Equatic Placen Sulfide en Sulfide en Sulfide en Red uck Surfa or Well DExplain in Depth	nts (B14) e Odor (Coheres on luced Iror uction in oce (C7) lata (D9) la Remarks (inches): (inches):	Secondary Second	ondary Indic Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ Surface water Water table p Saturation pre (includes cap	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) or Crust (B4) or Crust (B4) or Sits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent? esent?	al Imagel ave Surfa 3) Yes Yes Yes	y (B7) ace (B8) No	Aquatic True Ac Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge Other (E Fauna (Equatic Placen Sulfide en Sulfide en Sulfide en Red uck Surfa or Well DExplain in Depth	nts (B14) e Odor (Coheres on luced Iror uction in oce (C7) lata (D9) la Remarks (inches): (inches):	Secondary Second	ondary Indic Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely V Water-Sta Field Observ Surface water Water table p Saturation pre (includes capi Describe reco	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) or Crust (B4) or Crust (B4) or Sits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent? esent?	al Imagel ave Surfa 3) Yes Yes Yes	ry (B7) ace (B8) No No	Aquatic True Ac Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge Other (E Fauna (Equatic Placen Sulfide en Sulfide en Sulfide en Red uck Surfa or Well DExplain in Depth	nts (B14) e Odor (Coheres on luced Iror uction in oce (C7) lata (D9) la Remarks (inches): (inches):	Secondary Second	ondary Indic Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundatior Sparsely Water-Sta Field Observ Surface water Water table p Saturation pre (includes cap	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) or Crust (B4) or Crust (B4) or Sits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent? esent?	al Imagel ave Surfa 3) Yes Yes Yes	ry (B7) ace (B8) No No	Aquatic True Ac Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge Other (E Fauna (Equatic Placen Sulfide en Sulfide en Sulfide en Red uck Surfa or Well DExplain in Depth	nts (B14) e Odor (Coheres on luced Iror uction in oce (C7) lata (D9) la Remarks (inches): (inches):	Secondary Second	ondary Indic Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)
Type: Depth (inches Remarks: HYDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely V Water-Sta Field Observ Surface water Water table p Saturation pre (includes capi Describe reco	GY Irology Indicate ators (minimum Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) or Crust (B4) or Crust (B4) or Sits (B5) n Visible on Aeri Vegetated Concained Leaves (B5 rations: r present? ersent? esent?	al Imagel ave Surfa 3) Yes Yes Yes	ry (B7) ace (B8) No No	Aquatic True Ac Hydrog Oxidize (C3) Presen Recent (C6) Thin Mi Gauge Other (E Fauna (Equatic Placen Sulfide en Sulfide en Sulfide en Red uck Surfa or Well DExplain in Depth	nts (B14) e Odor (Coheres on luced Iror uction in oce (C7) lata (D9) la Remarks (inches): (inches):	Secondary Second	ondary Indic Surface S Drainage Dry-Sease Crayfish E Saturatior Stunted o Geomorpl FAC-Neut	cators (minicoli Cracks (IPatterns (Bron Water TaBurrows (C8 Notate) (C8 Notat	B6) 10) 10) 1ble (C2)) Aerial Imagery (C9) Plants (D1) (D2) 5)

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Former Refined Metals Corp		City/	County: B	eech Grove	Marion	Sampling Date:	4/23/12		
Applicant/Owner: Advanced GeoServices		State:	e: IN		Sampling Point:	WD-2			
Investigator(s): Colin Keith, KERAMIDA			Section, Township, Range:						
Landform (hillslope, terrace, etc.):	ndform (hillslope, terrace, etc.): Woodland		Local relief (concave, conve			x, none): Slight Concave			
Slope (%): 0 Lat: :			Long:	Long: 86.064308			Datum: WGS84		
Soil Map Unit Name Brookston silty clay loam		NWI Classification: Not Classified							
Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)									
Are vegetation, soil	, or hydrolo	gy	significantly	disturbed?		Are "normal circ	umstances"		
	, or hydrolo	gy	naturally pr	oblematic?			present? Yes		
SUMMARY OF FINDINGS					(If need	led, explain any a	answers in remarks.)		
Hydrophytic vegetation present?	Υ								
Hydric soil present?	Y		Is the s	ampled are	a within a	wetlan:	Y		
Wetland hydrology present?	Υ		f yes, op	tional wetlar	nd site ID:	Wetland Are	ea 2		
Remarks: (Explain alternative procedures he	ero or in a c	enarate re	aport)						
Tromaino (Espiain alternativo procederos in	5.0 0. 11. 4.0	oparato re	,po(1.)						
VEGETATION Use scientific name	s of plants	3.					***		
		Absolute	Dominan	Indicator	Domina	ance Test Works	sheet		
Tree Stratum (Plot size:)	% Cover	t Species	Staus		of Dominant Spe			
1 Fraxinus pennsylvanica		80	<u>Y</u> .	FACW		OBL, FACW, or F	· · · · · · · · · · · · · · · · · · ·		
3						Number of Domir cies Across all Str			
4						of Dominant Spe			
5					•	•	AC: 100.00% (A/B)		
		80	= Total Cover						
Sapling/Shrub stratum (Plot size:) ¯				Prevale	ence Index Work	sheet		
1 Acer negundo		20	Υ	FACW		Cover of:			
2 Lonicera morrowii				NI	OBL sp		x 1 = 0		
3					FACW:				
5					FAC sp FACU s		$ \begin{array}{ccc} x 3 &=& 0 \\ x 4 &=& 0 \end{array} $		
		20 ;	= Total Cover		UPL sp		$x5 = \frac{0}{0}$		
<u>Herb stratum</u> (Plot size:) -				Column		(A) 360 (B)		
1 Lonicera morrowii	·			NI		nce Index = B/A	` ' ` '		
2 Fraxinus pennsylvanica		80		FACW					
3					Hydrop	hytic Vegetatio	n Indicators:		
4					Rap	oid test for hydrox	ohytic vegetation		
5						ninance test is >			
6					X Pre	valence index is:	≤3.0*		
0						phogical adaptat			
9						porting data in Re arate sheet)	emarks or on a		
10						blematic hydroph	vic vegetation*		
		80 =	Total Cover			olain)	ylic vegetation		
Woody vine stratum (Plot size:)					ors of hydric soil and present, unless distu	wetland hydrology must be rbed or problematic		
2						rophytic	,		
		0 =	Total Cover		_	etation	,		
					pre	sent? Y	<u> </u>		
Remarks: (Include photo numbers here or or	n a separate	e sheet)							

SOIL	Sampling Point:	WD-2

Donth Mately	IDE IO III	e depth needed	to docu	ment the	indicate	or or confirm the abs	sence of indicators.)		
Depth <u>Matrix</u>	Matrix Redox Features								
(Inches) Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks		
0-18 10 YR 4/1	90	7.5 YR 5/6	10	RM	М	SCL			
		- W			************************				
				 					
		•							
			1						
	1		- I - I - I - I - I - I - I - I - I - I			and the same of th	namen kalahili Mili Alikhin Madamara kalasa araka sasa da melandonin indonin Mili Alikhi Alik		
	 								
			ļ	ļ					
						-MONAGONEZ-11 A			
Type: C = Concentration, D	= Depleti	on. RM = Reduc	ed Matrix	. MS = N	lasked S	and Grains. **Loc	cation: PL = Pore Lining, M = Matrix		
Hydric Soil Indicators:	_ 	O(1), 11.07 11.0440		, , , , , , , , , , , , , , , , , , , ,			roblematic Hydric Soils:		
Histisol (A1)		Sa	ndy Gley	ad Matrix	(\$4)		Redox (A16) (LRR K, L, R)		
Histic Epipedon (A2)			ndy Redo		(04)		e (S7) (LRR K, L)		
	ł						Peat or Peat (S3) (LRR K, L, R)		
Black Histic (A3)	4)		pped Ma		-1 /Eax				
Hydrogen Sulfide (A			my Muc	•			ese Masses (F12) (LRR K, L, R)		
Stratified Layers (A5	<i>י</i>)		amy Gley				v Dark Surface (TF12)		
2 cm Muck (A10)			oleted Ma			Other (expla	in in remarks)		
X Depleted Below Dark			dox Dark						
Thick Dark Surface			pleted Da		, ,		hydrophytic vegetation and weltand		
Sandy Mucky Minera			dox Depi	essions	(F8)	hydrology mu	ust be present, unless disturbed or		
5 cm Mucky Peat or	Peat (S3	i)					problematic		
Restrictive Layer (if observ	red).								
ype:	cuj.					Hydric soil pre	esent? Y		
Depth (inches):				-		riyano son pro	BOOKES-COMMUNICATIONS		
Deptil (Inches).				-	-				
			·· <u></u>	2021110121111					
Wetland Hydrology Indicat									
Wetland Hydrology Indicat Primary Indicators (minimum		s required; check							
Netland Hydrology Indicat Primary Indicators (minimum Surface Water (A1)		s required; check	Aquatic	Fauna (F		Sur	face Soil Cracks (B6)		
Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2)		s required; check	Aquatic True Ac	Fauna (F Juatic Pla	nts (B14)	Suri Dra	face Soil Cracks (B6) inage Patterns (B10)		
Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2)		s required; check	Aquatic True Ac	Fauna (F Juatic Pla		Sun Dra 1) Sun	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)		
Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1)		s required; check	Aquatic True Ac Hydrogo Oxidize	Fauna (I quatic Pla en Sulfide	nts (B14) e Odor (C	Sur Dra 1) Dry Living Roots Cra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8)		
Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		s required; check	Aquatic True Ac Hydrogo Oxidize (C3)	Fauna (E quatic Pla en Sulfide d Rhizes	nts (B14) e Odor (C oheres on	Sur Dra 1) Dry Cra Sati	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)		
Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3)		s required; check	Aquatic True Ac Hydroge Oxidize (C3) Present	Fauna (E quatic Pla en Sulfide d Rhizos ce of Rec	nts (B14) Odor (Coheres on	Sur Dra Dry	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)		
Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4)		s required; check	Aquatic True Ac Hydrogo Oxidize (C3) Present	Fauna (E quatic Pla en Sulfide d Rhizos ce of Rec	nts (B14) Odor (Coheres on	Sur Dra 1) Dry 1 Living Roots Cra Sate (C4) Stur Tilled Soils Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	<u>n of one is</u>		Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6)	Fauna (E quatic Pla en Sulfide d Rhizos ce of Rec Iron Red	nts (B14) c Odor (Coheres on luced Iron uction in	Sur Dra 1) Dry 1 Living Roots Cra Sate (C4) Stur Tilled Soils Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)		
Wetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri	n of one is	y (B7)	Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6) Thin Mu	Fauna (Fauna (Fauna) Fauna (Fauna)	nts (B14) POdor (Coheres on Luced Iron Luction in Ce (C7)	Sur Dra 1) Dry 1 Living Roots Cra Sate (C4) Stur Tilled Soils Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) K Inundation Visible on Aeri Sparsely Vegetated Cond	n <u>of one is</u> ial Imager cave Surfa	y (B7)	Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6) Thin Mu Gauge	Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna Fauna Fauna Fauna Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna (Fauna (nts (B14) c Odor (Coheres on luced Iron uction in ce (C7) ata (D9)	Sur Dra 1) Dry 1 Living Roots Sature 1 (C4) Stur Tilled Soils Gec FAC	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc	n <u>of one is</u> ial Imager cave Surfa	y (B7)	Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6) Thin Mu Gauge	Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna Fauna Fauna Fauna Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna (Fauna (nts (B14) POdor (Coheres on Luced Iron Luction in Ce (C7)	Sur Dra 1) Dry 1 Living Roots Sature 1 (C4) Stur Tilled Soils Gec FAC	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B	n <u>of one is</u> ial Imager cave Surfa	y (B7)	Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6) Thin Mu Gauge	Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna Fauna Fauna Fauna Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna Fauna Fauna (Fauna (Fauna (Fauna (Fauna (Fauna (Fauna Fauna (Fauna (nts (B14) c Odor (Coheres on luced Iron uction in ce (C7) ata (D9)	Sur Dra 1) Dry 1 Living Roots Sature 1 (C4) Stur Tilled Soils Gec FAC	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B	n <u>of one is</u> ial Imager cave Surfa	y (B7)	Aquatic True Ac Hydroge Oxidize (C3) Present Recent (C6) Thin Mu Gauge	Fauna (F juatic Pla en Sulfide d Rhizosj ce of Rec Iron Red uck Surfa or Well D Explain in	nts (B14) c Odor (Coheres on luced Iron uction in ce (C7) ata (D9)	Sur Dra 1) Dry 1 Living Roots Sature 1 (C4) Stur Tilled Soils Gec FAC	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present?	ial Imager cave Surfa	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mu Gauge Other (I	Fauna (F juatic Pla en Sulfide d Rhizosj ce of Rec Iron Red uck Surfa or Well D Explain ir	nts (B14) POdor (Coheres on luced Iron luction in luce (C7) Pata (D9) Remarks	Sur Dra 1) Dry 1 Living Roots Sature 1 (C4) Stur Tilled Soils Gec FAC	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2) C-Neutral Test (D5)		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Water table present?	ial Imager cave Surfa (9)	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mu Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recolor Reduck Surfactor Well Carefulation in the Depth of Depth of Surface Population (Figuration Population Populat	nts (B14) c Odor (Coheres on uced Iron uction in ce (C7) lata (D9) Remarks	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Water table present? Saturation present?	ial Imager cave Surfa (9) Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present Recent (C6) Thin Mu Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recolor Reduck Surfactor Well Carefulation in the Depth of Depth of Surface Population (Figuration Population Populat	nts (B14) c Odor (C oheres on uced Iron uction in ce (C7) ata (D9) Remarks (inches):	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Water table present? Saturation present? (includes capillary fringe)	ial Imager cave Surfa (9) Yes Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present (C6) Thin Mt Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recursive From Reduck Surfator Well Depth Depth	nts (B14) c Odor (Coheres on luced Iron uction in luction in Remarks (inches): (inches):	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology present? Y		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Water table present? Saturation present? (includes capillary fringe)	ial Imager cave Surfa (9) Yes Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present (C6) Thin Mt Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recursive From Reduck Surfator Well Depth Depth	nts (B14) c Odor (Coheres on luced Iron uction in luction in Remarks (inches): (inches):	Sur Dra	inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology present? Y		
X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aeri Sparsely Vegetated Cond	ial Imager cave Surfa (9) Yes Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present (C6) Thin Mt Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recursive From Reduck Surfator Well Depth Depth	nts (B14) c Odor (Coheres on luced Iron uction in luction in Remarks (inches): (inches):	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology present? Y		
Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Water table present? Saturation present? (includes capillary fringe) Describe recorded data (stre	ial Imager cave Surfa (9) Yes Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present (C6) Thin Mt Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recursive From Reduck Surfator Well Depth Depth	nts (B14) c Odor (Coheres on luced Iron uction in luction in Remarks (inches): (inches):	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology present? Y		
Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) K Inundation Visible on Aeri Sparsely Vegetated Conc X Water-Stained Leaves (B Field Observations: Surface water present? Vater table present? Saturation present? (includes capillary fringe) Describe recorded data (streen	ial Imager cave Surfa (9) Yes Yes Yes	y (B7)	Aquatic True Ac Hydrog Oxidize (C3) Present (C6) Thin Mt Gauge Other (I	Fauna (Figuratic Plater Sulfided Rhizos) See of Recursive From Reduck Surfator Well Depth Depth	nts (B14) c Odor (Coheres on luced Iron uction in luction in Remarks (inches): (inches):	Sur Dra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5) Wetland hydrology present? Y		

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Former Refined Metals Corp	City/	County: [Beech Grove	/Marion Sampling	g Date:	4/23/12		
Applicant/Owner: Advanced GeoServices	State:	IN	Sampling	Point:	WD-3			
Investigator(s): Colin Keith, KERAMIDA		Section, Township, Range: 27-15N-4E						
Landform (hilislope, terrace, etc.):	ndform (hillslope, terrace, etc.): Woodland			Local relief (concave, convex, none): Slight Concave				
Slope (%): 0 Lat: 39.716	Long: 86.064581 Datum: WGS84							
Soil Map Unit Name Brookston silty clay loam	VWI Classification: Not Classified							
Are climatic/hydrologic conditions of the site typica	for this time o	f the vear?		If no, explain in rem				
	irology	•	ly disturbed?	·	,			
	drology	-	roblematic?	Are non	nal circumst	esent? Yes		
SUMMARY OF FINDINGS		naturally p	TODIOTTIQUO.	(If needed, explai		*****		
Hydrophytic vegetation present?				(II riccaca, explai	ir arry arrow	sia in remarks.		
Hydric soil present?		is the campled area within a wetlen.						
Wetland hydrology present?		Is the sampled area within a wetland Y f yes, optional wetland site ID: Wetland Area 2						
			paonai wella	id site iD. Weth	aliu Area Z			
Remarks: (Explain alternative procedures here or in VEGETATION Use scientific names of pl		sport.)						
	Absolute	Dominan	Indicator	Dominance Test	Workshee	<u></u>		
Tree Stratum (Plot size:)	% Cover	t Species	Staus	Number of Domina	ant Species			
1 Fraxinus pennsylvanica	60	Y	FACW	that are OBL, FAC		5 (A)		
2				Total Number o				
3				Species Across	s all Strata:	5 (B)		
4				Percent of Domina		400 000/ (1/D)		
5		Tatal Caus		that are OBL, FAC	W, or ⊬AC:_	100.00% (A/B)		
Sapling/Shrub stratum (Plot size:	60	= Total Cove	er .	Prevalence Inde	v Workshoe			
1 Acer negundo	-' ₁₀	Υ	FACW	Total % Cover of:		, 1		
2 Lonicera morrowii			NI	OBL species	0 x1=	. 0		
3 Fraxinus pennsylvanica	5		FACW	FACW species	75 x 2 =			
4				FAC species	95 x 3 =			
5				FACU species	0 x 4 =	0		
	15	= Total Cove	er	UPL species	0 x 5 =	0		
Herb stratum (Plot size:	_)			Column totals	170 (A)	435 (B)		
1 Zizia aurea	95	Y	FAC	Prevalence Index	= B/A =	2.56		
2								
3				Hydrophytic Veg				
4				Rapid test for		vegetation		
6				X Dominance te X Prevalence in				
7				l 				
8	-			Morphogical a supporting da				
9				supporting da separate shee		no UI UII d		
10				Problematic h		/egetation*		
Woody sine stretum (Plet size:	95	Total Cove	r	(explain)	, a. a. a			
Woody vine stratum (Plot size: 1 Toxicodendron radicans subsp. negundo	/	V	EAC			nd hydrology must be		
2	5	<u> </u>	<u>FAC</u>	present, unic	ess disturbed o	r problematic		
		Total Cove		vegetation				
	J	- 10101 0076	1	present?	Y			
Remarks: (Include photo numbers here or on a sep	arate sheet)							
•	•							

SOIL								Sa	mpling Point:	WD-3	
	cription: (Descr	ibe to th	e depth needed	to docu	ment the	indicat	or or confirm t				
Depth	<u>Matrix</u>	***************************************		dox Feat		110000000	The second secon				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textur	e l	Remarks		
	10 YR 3/2	T	7.5 YR 5/6	1	RM	T	SCL	~		710	
0-18	10 18 3/2	90	7.5 11 5/6	10	HIVI	M	1 30L				
		<u> </u>			<u> </u>						
		•									
			***************************************				1				
	+		 				1			MEDINE RESERVED.	
		-		 	_	<u> </u>	:				
K		 	ļ	 	_	ļ					
						<u> </u>					
	Concentration, D	= Depleti	ion, RM = Reduce	ed Matrix	x, MS = N	/lasked S			n: PL = Pore Linin		
Hydric S	oil Indicators:								ematic Hydric So		
	stisol (A1)				/ed Matrix	د (S4)			dox (A16) (LRR K,	, L, R)	
	stic Epipedon (A2))		ndy Redo					7) (LRR K, L)		
	ack Histic (A3)				atrix (S6)				t or Peat (S3) (LR I		
	rdrogen Sulfide (A				cky Miner				Masses (F12) (LR	R K, L, R)	
	ratifled Layers (A5	j)			yed Matri:				rk Surface (TF12)		
	cm Muck (A10)				latrix (F3)		Other	(explain in	remarks)		
	epleted Below Darl				k Surface						
	ick Dark Surface (, ,		•	ark Surfa	, ,	*Indicat	ors of hydr	ophytic vegetation	and weltand	
	ındy Mucky Minera			qeQ xob	ressions	(F8)	hydrol		e present, unless	disturbed or	
5 c	cm Mucky Peat or	Peat (S3	3)						problematic		
Restrictive	Layer (if observ	/ed):		-		1			 		
Туре:	, ,	•					Hydric s	soil presen	it? Y		
Depth (inch	ies):						-	-			
Remarks:				**************************************	Invece	<u></u>					
						noncontractura de Composições de Composições de Composições de Composições de Composições de Composições de Co					
HYDROL				·····							
Wetland H	lydrology Indicat	ors:									
Primary Inc	dicators (minimum	ı of one i	s required; check	all that :	apply)		<u>Sec</u>	condary Ind	dicators (minimum	of two require	
	e Water (A1)				c Fauna (E		_		Soil Cracks (B6)		
	/ater Table (A2)				quatic Pla			~	e Patterns (B10)		
	tion (A3)		ECVERNINA .	_	gen Sulfide			_	son Water Table (C	;2)	
	Marks (B1)				ed Rhizosp	pheres or	n Living Roots		Burrows (C8)	. (0-)	
	ent Deposits (B2)		_	_(C3)	r D				on Visible on Aerial		
I	eposits (B3)			_	ce of Red		· · ·		or Stressed Plants	(D1)	
	Mat or Crust (B4)				i Iron Hea	uction in	Tilled Soils		phic Position (D2)		
	eposits (B5) ition Visible on Aeri	ial Image	n. (Q7)	_(C6) Thio Ma	luck Surfa	^^ (C7)	_	— FAG-Nei	utral Test (D5)		
munda	TIOL APPIDIE OF VED	ai iiilayei	.y (137)	[] []E [[VB	uck ound	ide (G7)					

Gauge or Well Data (D9)

Other (Explain in Remarks)

Depth (inches):

Depth (inches):

Depth (inches):

Sparsely Vegetated Concave Surface (B8)

Yes

Yes

Yes

No

No

No

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

X Water-Stained Leaves (B9)

Field Observations: Surface water present?

Water table present?

(includes capillary fringe)

Saturation present?

Remarks:

Wetland hydrology

Project/Site Former Refined Metals Corp	City/C	County: B	eech Grove/	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State: _	IN		Sampling Point:	WD-4
Investigator(s): Colin Keith, KERAMIDA		Section	on, Township	o, Range:	2	7-15N-4E
Landform (hillslope, terrace, etc.): Woodi	and	Local r	elief (concav	e, convex	, none):	None
Slope (%): 0 Lat: 39.716839		Long:	86.06470)6	Datum:	WGS84
Soil Map Unit Name Brookston silty clay loam				Classificat		Not Classified
Are climatic/hydrologic conditions of the site typical for	this time of	f the vear?	Y (I	f no, expla	ain in remarks)	
Are vegetation , soil , or hydrold		-		•	Are "normal circ	numetenese"
Are vegetation, soil, or hydroic					Ale Hormai Circ	present? Yes
SUMMARY OF FINDINGS	· · · · · · ·			(If need	ed. explain anv	answers in remarks.)
Hydrophytic vegetation present? Y	T			,		
Hydric soil present? N		Is the s	ampled area	a within a	wetlan:	N
Wetland hydrology present? N			tional wetlan			<u>· · </u>
			nonai nonai			
Remarks: (Explain alternative procedures here or in a s	separate re	port.)				
VEGETATION Use scientific names of plants	s.					
	Absolute	Dominan	Indicator	Domina	ance Test Work	sheet
Tree Stratum (Plot size:)		t Species	Staus		of Dominant Spe	
1 Carya ovata	70 20	<u> </u>	FACU		OBL, FACW, or F	` '
2 Fraxinus pennsylvanica 3	20	Y	FACW		Number of Domi ies Across all St	== =
4				·	of Dominant Spe	
5					OBL, FACW, or F	
	90 =	Total Cover	,		, ,	(****(*****_/
Sapling/Shrub stratum (Plot size:)				Prevale	nce Index Worl	ksheet
1 Lonicera morrowii			NI	Total %	Cover of:	
2				OBL sp	ecles 0	x1 = 0
3				FACW :	•	x 2 = 40
4				FAC sp		x3 = 240
5	0 =	Total Cover		FACU s	`	x = 4 = 280 x = 5 = 0
Herb stratum (Plot size:)	=	: rotal Gover		UPL spe Column		x = 0 (A) 560 (B)
1 Lonicera morrowii			NI		nce Index = B/A	· ` ′ ——— ` ′
2 Parthenocissus quinquefolia	70		FAC	rievale	nce maex = b/A	= 3.23
3 Toxicodendron radicans subsp. negundo	10	<u> </u>	FAC	Hydron	hytic Vegetatio	n Indicators:
4						phytic vegetation
5				X Don	ninance test is >	50%
6				Pre	valence index is	≤3.0*
7				 Mor	phogical adapta	tions* (provide
8					porting data in R	Remarks or on a
9					arate sheet)	
10		Total Cover				nytic vegetation*
Woody vine stratum (Plot size:)	= 80	:Total Cover			olain)	
4 (Fiot size.						l wetland hydrology must be irbed or problematic
2					rophytic	arbed or problematic
	0 =	Total Cover	 [-	etation	
	=			pre	sent?	<u>Y</u>
Remarks: (Include photo numbers here or on a separat	e sheet)					
,						

COU								Sam	mline Point. NAD 4
SOIL	RECEDENCE OF THE PROPERTY OF T	 							pling Point: WD-4
		A144	,			e indicat	or or confirm the	e absence	of indicators.)
Depth	<u>Matrix</u>			dox Feat			- .		Б
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
- 0-18	10 YR 3/3	100					SCL		
		 		-	1	ļ	<u> </u>		124 124 144 144 144 144 144 144 144 144
	· · · · · · · · · · · · · · · · · · ·	<u> </u>		+	_	ļ			
	 			 	 				
**************************************		ļ		ļ		ļ			
	Concentration, D	= Deplet	ion, RM = Reduc	ed Matri	x, MS = N	Masked S			PL = Pore Lining, M = Matrix
Hydric S	oil Indicators:	100	SCOOL STATE OF THE			·			natic Hydric Soils:
	stisol (A1)				yed Matrix	x (S4)			ox (A16) (LRR K, L, R)
	stic Epipedon (A2))		indy Red				ırface (S7)	, , ,
	ick Histic (A3)				atrix (S6)				or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A				cky Miner				lasses (F12) (LRR K, L, R)
	atified Layers (A5	5)			yed Matri				Surface (TF12)
	m Muck (A10)				/latrix (F3)		Other (e	explain in re	marks)
	pleted Below Dar		· · ·		k Surface	, ,			
	ick Dark Surface				ark Surfa				ohytic vegetation and weltand
	ndy Mucky Miner			aox neb	ressions	(1-8)	nyarolog		present, unless disturbed or
	m Mucky Peat or		3)					μι	roblematic
	Layer (if observ	/ed):							
Type:			···		_		Hydric soi	il present?	? <u>N</u>
Depth (inch	.es):								
Remarks:		udougnamendococcu telecoder scalesco				····			
HYDROL									
1	ydrology Indicat								
	dicators (minimum	ı of one i	<u>s required; check</u>				Seco		ators (minimum of two required
	Water (A1)		_		c Fauna (E				oil Cracks (B6)
	ater Table (A2)				quatic Pla			_	Patterns (B10)
	ion (A3)		RODANIO		gen Sulfide		·		on Water Table (C2) Jurrows (C8)
	Marks (B1) ent Deposits (B2)			(C3)	∌a Hnizos¦	pneres or	Living Roots	_ ′	Visible on Aerial Imagery (C9)
	eposits (B3)		_		ice of Red	duced Iror) (C4)	_	Stressed Plants (D1)
	lat or Crust (B4)			_			Tilled Soils	_	nic Position (D2)
	posits (B5)			(C6)					ral Test (D5)
Inundat	tion Visible on Aeri	ial Image	ry (B7)	Thin M	luck Surfa	.ce (C7)		-	, ,
Sparse	ly Vegetated Conc	ave Surfa	ace (B8)	Gauge	or Well D	ata (D9)			
Water-	Stained Leaves (B	9)		Other ((Explain in	ı Remarks	s)		
Field Obse	rvations:								
	iter present?	Yes	No			(inches):		Wetla	
Water table		Yes	No			(inches):		hydro	~ ,
Saturation	present?	Yes	No		Depth i	(inches):		prese	ent? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

(includes capillary fringe)

Project/Site Former Refined Metals Corp		City/	County: Be	eech Grove	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoService	ces		State:	IN		Sampling Point:	WD-5
Investigator(s): Colin Keith, KERAMIDA			Section	on, Townshi	p, Range:	27-	15N-4E
Landform (hillslope, terrace, etc.):	Woodla	and	Local re	ellef (concav	e, conve	k, none):	Slight Convex
Slope (%): 0 Lat:	39.716872		Long:	86.06447	78	Datum:	WGS84
Soil Map Unit Name Brookston silty clay I	oam			JWI+	Classifica	tion: No	t Classified
Are climatic/hydrologic conditions of the	ite typical for t	this time o	of the year?	Υ (f no, expl	ain in remarks)	
Are vegetation , soil	, or hydrolo	gy	significantly	disturbed?		Are "normal circui	mstances"
Are vegetation , soil	, or hydrolog	<u></u>	naturally pro	oblematic?			present? Yes
SUMMARY OF FINDINGS					(If need	led, explain any an	swers in remarks.)
Hydrophytic vegetation present?	Υ						
Hydric soil present?	N		is the s	ampled are	a within a	wetlan N	
Wetland hydrology present?	N		f yes, op	tional wetlar	nd site ID:		
Remarks: (Explain alternative procedures	here or in a s	eparate re	eport.)				
VECETATION						······································	
VEGETATION Use scientific nan	•		Dominan	Indiantes	Domin	ance Test Worksh	neet .
Tree Stratum (Plot size:		Absolute % Cover		Indicator Staus		of Dominant Specie	
1 Carya ovata		50	Y	FACU		OBL, FACW, or FA	
3					i	Number of Domina cies Across all Strat	
4					Percent	of Dominant Specie	es es
5					that are	OBL, FACW, or FA	C: 66.67% (A/B)
		50	= Total Cover	•			
Sapling/Shrub stratum (Plot size:)			A 11	l	ence Index Works	heet
1 Lonicera morrowii				NI	l	Cover of:	1 0
3					OBL sp		1 = 0
4					FAC sp		3 = 60
5						species 50 x	
		0	≃ Total Cover		UPL sp	ecies 0 x	5 = 0
<u>Herb stratum</u> (Plot size:)				Column	totals 70 (/	A) <u>260</u> (B)
1 Lonicera morrowii				NI_	Prevale	ence Index = B/A =	3.71
2 Parthenocissus quinquefolia		10	<u>Y</u>	FAC_			
3 Toxicodendron radicans subsp. neg	gundo	10	Y	FAC		hytic Vegetation	
4						old test for hydroph	·
5						minance test is >50 valence index is ≤	
7					l — ' ' '		•
8						rphogical adaptation porting data in Rei	
9		···				arate sheet)	
10		20	= Total Cover			blematic hydrophy plain)	tic vegetation*
Woody vine stratum (Plot size:	,-		= i olai Gover		_		
11						present, unless disturb	etland hydrology must be ed or problematic
2					_	drophytic jetation	
		0 :	=Total Cover			sent? Y	
Remarks: (Include photo numbers here o	r on a separate	e sheet)					

SOIL			
301 L			

SOIL								Sa	mpling Point:	WD-5
Profile Desc	cription: (Descri	be to th	e depth needed	to docu	ment the	indicat	or or confirm	the absence	e of indicators.)	
Depth	<u>Matrix</u>			dox Feat					010000000000	
(Inches)	Color (moist)	%%	Color (moist)	%	Type*	Loc**	Text	ure	Rema	rks
0-18	10 YR 3/3	100					SCL			
		***************************************					<u> </u>		····	
				 	-					DAC-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-11-14-1
	***********			-						
									w	
					ļ					
							<u></u>		W 000 V 100	
	Concentration, D :	= Deplet	on, RM = Reduc	ed Matrix	k, MS = N	/lasked S			n: PL = Pore Linin	
-	il Indicators:								ematic Hydric So	
	tisol (A1)				ed Matrix	(S4)			dox (A16) (LRR K ,	, L, R)
	tic Epipedon (A2)			ndy Redo					7) (LRR K, L)	
	ck Histic (A3)			pped Ma				-	t or Peat (S3) (LR I	
	lrogen Sulfide (A4			-	ky Miner				Masses (F12) (LR	R K, L, R)
	atified Layers (A5)			ed Matri				rk Surface (TF12)	
	n Muck (A10)		***************************************		atrix (F3)		Othe	er (explain in	remarks)	
	oleted Below Dark		· · ·		Surface	. ,				
	ck Dark Surface (,			ark Surfa			•	ophytic vegetation	
	ndy Mucky Minera m Mucky Peat or			oox Depr	ressions	(F8)	nyar	ology must b	e present, unless problematic	disturbed or
MONITORIO MI	<u> </u>		")			4			problematic	**************************************
	Layer (if observ	ed):								
Type:					NEED STATE OF THE		Hydric	soil preser	nt? <u>N</u>	
Depth (inche	38):				_					
HYDROL							, ,		· · · · · · · · · · · · · · · · · · ·	
	drology Indicate									
	<u>cators (minimum</u>	of one is	<u>required; check</u>				<u>s</u>		<u>dicators (minimum</u>	of two required
	Water (A1)		-		Fauna (E	•			Soil Cracks (B6)	
	ater Table (A2)			_	-	nts (B14)			e Patterns (B10)	
Saturati				_		Odor (C	•		son Water Table (C	;2)
	farks (B1) nt Deposits (B2)			(C3)	a Knizos	oneres on	Living Roots		Burrows (C8) on Visible on Aerial	Imagany (CO)
	posits (B3)				ne of Red	luced Iron	(C4)		or Stressed Plants	
	at or Crust (B4)		- Interest	160			Tilled Soils		phic Position (D2)	(D1)
	posits (B5)			(C6)	non nou	dottori iri	Tilliou Collo		utral Test (D5)	
	on Visible on Aeria	al Imager	y (B7)	_ ` ′	ick Surfa	ce (C7)	•			
Sparsel	y Vegetated Conc	ave Surfa	ice (B8)	_	or Well D					
Water-S	Stained Leaves (BS))		Other (I	Explain in	Remarks	s)			
Field Obse	rvations:									
Surface wat	er present?	Yes	No		_ Depth ((inches):		We	tland	
Water table	•	Yes	No			(inches):		hyd	irology	
Saturation p		Yes	No		_ Depth ((Inches):		pre	sent? N	
	pillary fringe)									
Describe re	corded data (stre	am gaug	e, monitoring we	ll, aerial	photos, p	revious i	inspections), i	f available:		
Remarks:	 								Winds (March 1997)	
i Giliaina.										

Project/Site Former Refined Metals Corp		City/	County: B	Beech Grove/	Marion	_Sampling Date: _	4/23/12
Applicant/Owner: Advanced GeoServic	es		State:	IN		Sampling Point:	WD-6
Investigator(s): Colin Keith, KERAMIDA			Secti	ion, Townshi	p, Range:	: 27-	15N-4E
Landform (hillslope, terrace, etc.):	Wood	lland	Local r	relief (concav	/e, conve	x, none):	Convex
Slope (%): 0 Lat:	39.71675		Long:	86.06458		Datum:	WGS84
Soil Map Unit Name Urban Land-Brooksto	on Complex			1WI	Classifica		t Classified
Are climatic/hydrologic conditions of the s	·····	r this time o	of the year?	<u>Y</u> (!	If no, expl	ain in remarks)	•
Are vegetation , soil	, or hydrol	logy	significantl	y disturbed?		Are "normal circur	mstances"
Are vegetation, soil		logy		roblematic?		Alo Horria Silva.	present? Yes
SUMMARY OF FINDINGS	, -	·- <u>-</u>			(If need	ded, explain any an	•
Hydrophytic vegetation present?	Υ						
Hydric soil present?	N		ls the s	sampled area	a within a	a wetlanı N	
Wetland hydrology present?	N	[tional wetlar			
Remarks: (Explain alternative procedures	hara or in a	acceptate re	<u> </u>			<u></u>	
Непаткъ. (Explain ацеттацув ріосвий въ	Пеге Ог пта	Separate ге	port.)				
VEGETATION Use scientific nam	nes of plan	ts.					
		Absolute	Dominan	Indicator	Domina	ance Test Worksh	
<u>Tree Stratum</u> (Plot size:)	% Cover		Staus		r of Dominant Specie OBL, FACW, or FAC	
23					Total	Number of Domina	nt
4					· ·	cies Across all Strat	
5						t of Dominant Specie OBL, FACW, or FAC	
	· ·	0 :	= Total Cove	r	lilut a.c	ODE, 171011, 51 17.	J. 10.0076 (10.0)
Sapling/Shrub stratum (Plot size:)		· (• • • • • • • • • • • • • • • • • •	<u> </u>	Prevale	ence Index Works	heet
1 Acer negundo	-	20	Υ	FACW		Cover of:	
2 Lonicera morrowii				NI	OBL sp	oecies <u>0</u> x	1 = 0
3					l .	·	2 = 80
4					FAC sp		3 = 30
5			T :-1 O-14		FACUS		4 = 0
Harb stratum (Plat size:	,		= Total Cover	r .	UPL sp		5 = 0
Herb stratum (Plot size:		00	V	- 4 O \ M	Column	 '	· — · · ·
1 Hydrophyllum virginianum 2 Zizia aurea		10	<u> </u>	FACW FAC	Prevale	ence Index = B/A =	2.20
3 Lonicera morrowii			T	NI NI	Hydron	phytic Vegetation I	Indicators:
4				141		pid test for hydroph	
5						minance test is >50	-
6						valence index is ≤3	
7						rphogical adaptatio	
8					sup	porting data in Ren parate sheet)	
10						blematic hydrophyt	ric vegetation*
		30 =	= Total Cover	r		plain)	
Woody vine stratum (Plot size:)				*Indicate	ors of hydric soil and we	etland hydrology must be
1		5	Υ			present, unless disturbe	
2					_	drophytic	
_		5 =	= Total Cover	r	_	getation esent? Y	
Remarks: (Include photo numbers here or	on a separa	te sheet)	<u> </u>				=
, , , , , , , , , , , , , , , , , , ,	01. 4 4-1	,					

SOIL								Sa	mpling Point: WD-6
Profile Des	cription: (Describe	e to the dept	h needed	to docu	ment the	indicat	or or confirm	the absenc	e of indicators.)
Depth	<u>Matrix</u>		Re	dox Feat	ures				
(Inches)	Color (moist)	% Cold	or (moist)	%	Type*	Loc**	Textu	re	Remarks
0-18	10 YR 4/6	100					SCL		
									ss-t-sssyzzarathauto-odo-vistoritoti-
									, , , , , , , , , , , , , , , , , , , ,
MONEY ROCK TO COMPANY OF THE PARK THE P			ACCUMENTATION OF THE SECTION OF THE		***************************************				, water work and the control of the
					-				<u> </u>
									
NCINCHNONE INVOLUTION IN THE PROPERTY OF THE P			woods compressed and		***************************************				V-1
Type: C = (Concentration, D = I	Depletion, RN	/I = Reduc	ed Matri:	x, MS = N	/lasked S	and Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
Hydric Sc	oil Indicators:						Indicator	s for Probl	ematic Hydric Soils:
His	itisol (A1)		Sai	ndy Gley	ed Matrix	(S4)	Coas	t Prairie Re	dox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sa	ndy Red	ox (\$5)		Dark	Surface (S7	7) (LRR K, L)
	ick Histic (A3)			• •	atrix (S6)			-	t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4)				ky Miner				Masses (F12) (LRR K, L, R)
	atified Layers (A5)				∕ed Matri				rk Surface (TF12)
	m Muck (A10)				atrix (F3)		Other	(explain in	remarks)
	pleted Below Dark S				Surface	. ,			
	ick Dark Surface (A				ark Surfa				ophytic vegetation and weltand
	ndy Mucky Mineral (He	аох пер	ressions	(F8)	hydro		e present, unless disturbed or
and the same of th	m Mucky Peat or Pe		70070000000000000000000000000000000000	····					problematic
	Layer (if observed	i):							
Type:					_		Hydric	soil presen	it? <u>N</u>
Depth (inch	es):								
Remarks:									
									WATER THE STATE OF
HYDROL	OGY								
Wetland Hy	ydrology Indicators	s:							
Primary Ind	licators (minimum of	<u>f one is requi</u>	red; check	all that a	apply)		<u>Se</u>	condary Inc	<u>licators (minimum of two require</u>
Surface	Water (A1)			Aquatio	: Fauna (E	313)		Surface	Soil Cracks (B6)
	ater Table (A2)		P600040		quatic Pla		_		Patterns (B10)
	ion (A3)		_		en Sulfide	-	·		son Water Table (C2)
	Marks (B1)				d Rhizosi	oheres on	Living Roots		Burrows (C8)
	ent Deposits (B2)			-(C3)					on Visible on Aerial Imagery (C9)
	eposits (B3)		_		ce of Red				or Stressed Plants (D1)
	at or Crust (B4)				Iron Red	uction in	Tilled Soils		phic Position (D2)
	posits (B5) ion Visible on Aerial :	lmagary (R7)		_(C6) Thio M	uck Surfa	no (C7)	_	— FAC-Nei	utral Test (D5)
	ly Vegetated Concav		·		or Weil D	, ,			
	stained Leaves (B9)		′ —		Explain in		s)		
Field Obse							-1	1	
	ter present?	Yes	No		Denth ((inches):		We	tland
Mater table	,	Von			- Dopth (,	NOTICE AND ADDRESS OF THE PARTY		Irology

Depth (inches):

Nο

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Saturation present?

Remarks:

(includes capillary fringe)

Ν

Project/Site Former Refined Metals Corp	City	County: Beech	n Grove/Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoService	es	State:	IN	Sampling Point:	WD-7
Investigator(s): Colin Keith, KERAMIDA		Section, 7	Township, Range	: 27-1	5N-4E
Landform (hillslope, terrace, etc.):	Woodland	Local relief	(concave, conve	x, none):	None
Slope (%): 0 Lat:	39.717581	 Long: 8	36.064564	Datum:	WGS84
Soil Map Unit Name Urban Land-Crosby	Complex		VWI Classifica	ation: Not	Classified
Are climatic/hydrologic conditions of the s	ite typical for this time o	of the year? Y	(If no, exp	lain in remarks)	
Are vegetation , soil	, or hydrology	significantly dist	turbed?	Are "normal circum	stances"
Are vegetation , soil	, or hydrology	naturally proble	matic?		present? Yes
SUMMARY OF FINDINGS		•	(If need	ded, explain any ans	wers in remarks.)
Hydrophytic vegetation present?	Υ				
Hydric soil present?	Υ	Is the samp	oled area within	a wetlan: Y	
Wetland hydrology present?	Υ	f yes, options	al wetland site ID	: Wetland Area 3	3
Remarks: (Explain alternative procedures	here or in a separate r	enart)			
The same (Espain and Same)	noro or in a coparato (.			
VEGETATION Use scientific nam	nes of plants.				
	Absolute	Dominan Ind	icator Domin	ance Test Workshe	et
Tree Stratum (Plot size:) % Cover	•		r of Dominant Species	
1 Fraxinus pennsylvanica		<u> </u>		OBL, FACW, or FAC	`
2 3				ll Number of Dominan ecies Across all Strata	-
4	,			t of Dominant Species	
5				OBL, FACW, or FAC	
	30	= Total Cover		, ,	
Sapling/Shrub stratum (Plot size:	<u> </u>	1	Preval	ence Index Worksh	eet
1		·		6 Cover of:	
2 Acer negundo	25		ACW OBL sp		
3 Lonicera morrowii 4			NI FACW FAC sr	species 60 x 2	
5				species 0 x 4	
		= Total Cover	UPLsp	,	
Herb stratum (Plot size:)			n totals ${60}$ (A)	
1 Fraxinus pennsylvanica	5	Y FA	ACW Prevale	ence Index = B/A =	2.00
2					
3				phytic Vegetation Ir	
4				pid test for hydrophy	-
5				minance test is >50% evalence index is ≤3.	
6			— — · · ·		
8				orphogical adaptation oporting data in Rem	
9			 ;	pporting data in riem parate sheet)	arks or on a
10	5	= Total Cover		oblematic hydrophytic (plain)	c vegetation*
Woody vine stratum (Plot size:)	- 1014/ 0010/	— ·		tond budgeless morethe
1			maica	tors of hydric soil and wet present, unless disturbed	
2				drophytic	
_	0	= Total Cover		getation esent? Y	_
Remarks: (Include photo numbers here or	on a separate sheet)				

SOIL								Samo	iling Point: WD-7
	cription: (Describ	e to the c	lepth needed	to docu	ment the	indicat	or or confirm	······································	
Depth	Matrix			lox Feat			<u> </u>		
(Inches)	Color (moist)	% (Color (moist)	·		Loc**	Textu	ire	Remarks
0-18		}-	10 YR 5/6	5	T		SCL		. 10710110
0-18	10 YR 3/2	95	10 th 5/6)	RM	M	SUL		
					<u> </u>				
									
······································	**************************************	BOOLANCE WATER TO SERVICE OF THE SER		l	+				V-1
									: : : : : : : : : : : : : : : : : : : :
Type: C = 0	Concentration, D =	Depletion	, RM = Reduce	ed Matri:	x, MS = N	/lasked S	Sand Grains.	**Location: F	PL = Pore Lining, M = Matrix
	il Indicators:		zinzalizi-poalzonenomonioni manara mon						atic Hydric Soils:
His	tisol (A1)		Sar	ndy Gley	ed Matrix	(S4)			(A16) (LRR K, L, R)
************	tic Epipedon (A2)			ndy Red		· /		Surface (S7) (I	
	ck Histic (A3)				atrix (S6)				Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4)	1			ky Miner				sses (F12) (LRR K, L, R)
	atified Layers (A5)	'		-	yed Matri			Shallow Dark S	
	m Muck (A10)				latrix (F3)			r (explain in ren	
	oleted Below Dark	Surface (/			Surface			, (oxpiani in ron	na no,
	ck Dark Surface (A	-			ark Surfa	. ,	*Indica	atore of hydronh	nytic vegetation and weltand
	ndy Mucky Mineral	•			ressions				resent, unless disturbed or
	m Mucky Peat or P			дох Бер	100010110	(10)	riyare		blematic
	-					~		P	one of the contraction of the co
	Layer (if observe	d):							
Type:					•••		Hydric	soil present?	Y
Depth (inch	es):								
Remarks:									· · · · ·
HYDROL	ngv								AND THE PROPERTY OF THE PROPER
	/drology Indicator	201							
	•			_11_454	IN				
	icators (minimum o	one is re	equirea; cneck	****	-1)+(+-)-7		<u>Se</u>		tors (minimum of two require
	Water (A1)				Fauna (E		_		Cracks (B6)
1 P. L. 147	ater Table (A2)			_	quatic Pla		_		atterns (B10)
				⊣varoa	en Sulfide	÷ Canor (C	·1)		Water Table (C2)
Saturati							A Salam Deed	Owner all a la Philip	
Saturati Water N	Marks (B1)			Oxidize			Living Roots	Crayfish Bu	rrows (C8)
Saturati Water N Sedime	flarks (B1) nt Deposits (B2)		_	Oxidize (C3)	d Rhizosı	oheres or	_	Saturation \	rrows (C8) /isible on Aerial Imagery (C9)
Saturati Water N Sedime X Drift De	Marks (B1) nt Deposits (B2) posits (B3)		_	Oxidize (C3) Presen	ed Rhizos _l ce of Rec	oheres or luced Iron	n (C4)	Saturation \ Stunted or S	rrows (C8) /isible on Aerial Imagery (C9) Stressed Plants (D1)
Saturati Water N Sedime X Drift De Algal M	Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		<u> </u>	Oxidize (C3) Presen Recent	ed Rhizos _l ce of Rec	oheres or luced Iron	_	Saturation \ Stunted or S Geomorphic	rrows (C8) /isible on Aerial Imagery (C9) Stressed Plants (D1) Position (D2)
Saturati Water M Sedime X Drift De Algal M Iron De	Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	limagon (P7)	Oxidize (C3) Presen Recent (C6)	ed Rhizos ce of Rec tron Red	oheres or luced tror uction in	n (C4)	Saturation \ Stunted or S	rrows (C8) /isible on Aerial Imagery (C9) Stressed Plants (D1) Position (D2)
Saturati Water M Sedime X Drift De Algal M Iron De Inundati	Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)			Oxidize (C3) Presen Recent (C6) Thin M	ed Rhizos _l ce of Rec	oheres or luced from uction in ce (C7)	n (C4)	Saturation \ Stunted or S Geomorphic	rrows (C8) /isible on Aerial Imagery (C9) Stressed Plants (D1) Position (D2)

Depth (inches):

Depth (inches):

Depth (inches):

Field Observations: Surface water present?

Water table present? Saturation present?

Remarks:

(includes capillary fringe)

Yes

Yes Yes Νo

No

No

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Wetland

hydrology

Project/Site Former Refined Metals Corp	City/0	County: B	leech Grove/	Marion	Sampling Date:	4/23/12
Applicant/Owner: Advanced GeoServices		State:	IN		Sampling Point:	WD-8
Investigator(s): Colin Keith, KERAMIDA		Secti	on, Townshi	o, Range:	27	'-15N-4E
Landform (hillslope, terrace, etc.):	oodland	 Local r	elief (concav	e, convex	(, none):	Slight Concave
Slope (%): 0 Lat: 39.717	161	Long:	86.06386	34	Datum:	WGS84
Soil Map Unit Name Urban Land-Crosby Complex			\WI	Classificat	tion: N	ot Classified
Are climatic/hydrologic conditions of the site typica		f the vear?			ain in remarks)	
	drology	•	y disturbed?		Are "normal circu	ımetaneae"
	drology		oblematic?		Are normal circu	present? Yes
SUMMARY OF FINDINGS				(If need	ed. explain any a	nswers in remarks.)
Hydrophytic vegetation present? Y	I			(,,	,
Hydric soil present? Y		Is the s	ampled are	a within a	wetlanı Y	
Wetland hydrology present?			tional wetlar			
	·				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Remarks: (Explain alternative procedures here or		port.)				
VEGETATION Use scientific names of p	lants.					
T 0	Absolute	Dominan	Indicator		ince Test Works	
Tree Stratum (Plot size:) 1 Fraxinus pennsylvanica	% Cover 45	t Species	Staus FACW		of Dominant Spec	
2		<u> </u>	FACW		OBL, FACW, or FA	 ``
3					Number of Domination oies Across all Stra	
4				•	of Dominant Spec	· · · · · · · · · · · · · · · · · · ·
5					•	AC: 100.00% (A/B)
	45 :	Total Cove	r			
Sapling/Shrub stratum (Plot size:)			Prevale	nce Index Works	sheet
1 Lonicera morrowii			NI		Cover of:	
2 Acer negundo	20	<u>Y</u>	FACW	OBL sp		(1 = 0)
3				FACW 9		(2 = <u>130</u> (3 = 0
5				FAC spe		(4= 0
	20 :	Total Cove		UPL spe	·	(5 == 0
Herb stratum (Plot size:)			Column		A) 130 (B)
1	·			Prevale	nce Index = B/A =	
2						
3				Hydrop	hytic Vegetation	Indicators:
4				Rap	oid test for hydrop	hytic vegetation
5				-	ninance test is >5	t t
6				X Pre	valence index is ≤	3.0*
					phogical adaptation	
9					porting data in Re arate sheet)	marks or on a
10					arate sneet/ blematic hydrophy	itio vegetation*
Woody vine stratum (Plot size:		Total Cover	·		olain)	viic vegetation
1	, 			F	oresent, unless disturl	vetland hydrology must be bed or problematic
2					lrophytic	
	0 =	Total Cover	,		etation sent? Y	
Remarks: (Include photo numbers here or on a se	parate sheet)					

SOIL								Sar	mpling Point: WD-8
	cription: (Descri	he to the		to docu	ment the		or or confirm t		
Depth	Matrix	50 10 111		dox Feat		/ 1110.00		10 0000	· DE III a controlly
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	e	Remarks
0-18	10 YR 3/2	100	00.01 (T	1 .75-	T	SCL	<u> </u>	1 Carrier and Carrier
U-10	IV ID U/E	100			 		JOL .		
						!			OCCUPATION OF THE PROPERTY OF
**************************************	J					!			hi5-na nadada adala ada ada ada ada ada ada ada
					***************************************	,			
	1		CHGGCSGSWWW.MGMGRGOVOLUNYII	†	+	 			WWW.comzoz
					-	+			
***************************************		_	 	——	_	ļ			
			<u> </u>						
<u> </u>	Concentration, D =	= Depletion	on, RM = Reduc	ed Matri	x, <u>MS = 1</u>	√las <u>ked</u> S			n: PL = Pore Lining, M = Matrix
-	oil Indicators:			AllMarover					matic Hydric Soils:
	stisol (A1)				yed Matrix	x (S4)			lox (A16) (LRR K, L, R)
	stic Epipedon (A2)			ndy Red) (LRR K, L)
	ack Histic (A3)				atrix (S6)			•	or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4			•	cky Miner	, ,		_	Masses (F12) (LRR K, L, R)
	atified Layers (A5))			yed Matri:				k Surface (TF12)
	m Muck (A10)			•	/latrix (F3)		Other ((explain in r	remarks)
	pleted Below Dark				k Surface				
	ick Dark Surface (A				ark Surfa				phytic vegetation and weltand
	ndy Mucky Minera			dox Dep	ressions	(F8)	hydrolc		e present, unless disturbed or
5 c	om Mucky Peat or I	Peat (S3))					ſ	problematic
Restrictive	Layer (if observe	ed):	Manager dan Maranda dan Maranda dan Maranda dan Maranda dan Maranda dan Maranda dan Maranda dan Maranda dan Ma			T			
Туре:		/ - /-					Hydric s	oil present	1? Y
Depth (inch	ies):	,					•	W	Demice-www.memor
							AND THE PROPERTY OF THE PROPER	MANAGEMENT OF THE STATE OF THE	SPREPIZZZANIZARYANIANI VINYARIANI KANASHANI KANASHANI KANASHANI KANASHANI KANASHANI
Remarks:									
l									
		managa da da da da da da da da da da da da da	NO CONTRACTOR CONTRACT						
HYDROL								 	
	ydrology Indicato								
Primary Ind	dicators (minimum	of one is	required; check	all that	apply)		<u>Sec</u>	ondary Indi	cators (minimum of two require
1	e Water (A1)				c Fauna (E	,			Soil Cracks (B6)
	ater Table (A2)		-	_	quatic Pla	. ,	·		Patterns (B10)
	tion (A3)		_		gen Sulfide		· —		on Water Table (C2)
	Marks (B1)				∌d Rhizosr	pheres on	n Living Roots		Burrows (C8)
	ent Deposits (B2)		_	-(C3)					n Visible on Aerial Imagery (C9)
	eposits (B3)		_	_	nce of Red				or Stressed Plants (D1)
	Mat or Crust (B4)				lron Hea ا	uction in	Tilled Soils		phic Position (D2)
	eposits (B5) tion Visible on Aeria	-Umnagar	/ 51 7 1	(C6) Thin M	L- Confo	(07)		FAU-INBU	itral Test (D5)
Inungai	tion Visible on Aeria	ıl imager	y (B/)	יועו מומ ו	luck Surfa	.ce (U/)			

Gauge or Well Data (D9)

Other (Explain in Remarks)

Depth (inches): Depth (inches):

Depth (inches):

Sparsely Vegetated Concave Surface (B8)

Yes

Yes

Yes

No

No

No

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Water-Stained Leaves (B9)

Field Observations:

Water table present?

Saturation present?

Remarks:

Surface water present?

(includes capillary fringe)

Wetland

hydrology

•		•	·	
				•
			•	
	r			